

CA JOURNAL

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1946 Safest Airline Year, Wright and Landis Testify

Accident figures tracing a steady improvement in airline safety since 1929, topped off by the 1946 all-time record, were presented by the Civil Aeronautics Administration and Civil Aeronautics Board before the House Committee on Interstate and Foreign Commerce which began an investigation of airline accidents January 22.

Called before the committee to supply information on CAA activities in safety enforcement and operation of the Federal Airways, T. P. Wright, Administrator for Civil Aeronautics, presented data giving appropriation figures, safety measures taken, and the complete airways picture, including facts on new types of navigation aids. James M. Landis, Chairman of the Civil Aeronautics Board, placed the CAB record in accident investigation and safety regulation before the committee.

Civil Aviation Use of Radar Outlined at Hearing

The Civil Aeronautics Administration hopes to use radar extensively in the near future for traffic control, T. P. Wright, Administrator, revealed at the House committee hearings.

At the same time, he emphasized that the CAA instrument landing system will be the primary landing aid on the U. S. airways system, with radar playing a supplementary role in bad-weather landings.

"Statistically," Mr. Wright said, "the record of the U. S. scheduled air carriers (domestic and international) from the safety standpoint is the best that ever existed in the United States, and incidentally is from three to twenty times as good a record as has existed for the air carriers of any foreign country."

3200 Times Around World—"The fatalities per 100 million passenger miles traveled for the domestic certificated carriers improved by dropping from 2.14 in 1945 to 1.24 in 1946. The latter figure amounts to 80,613,000 passenger miles per passenger fatality, which is equivalent to flying 3200 times around the world. The figure for the combined operation for the domestic and international U. S. flag carriers is 1.60—an all-time record.

"Yet I share with you a tremendous concern over the actual number of accidents and appreciate the vital need of making certain that the downward trend in the fatality rate which has occurred throughout the history of scheduled air transport in this country shall continue at an accelerated pace."

Outlines CAA Policy—Mr. Wright outlined the CAA policy in connection with GCA and ILS landing systems in part as follows:

"Ground control approach is a technique, using
(See Radar's Role, page 16)

Lower Insurance Charges Proof of Air Safety

The greatly reduced insurance rates allowed passengers on domestic scheduled airlines offer concrete proof of increasing safety in airline travel, James M. Landis, Chairman of the Civil Aeronautics Board, told the committee.

Lower insurance rates, coming from a completely unbiased source, put meaning into the 1.24 fatality per 100 million passenger miles for domestic airlines in 1946, he said.

He pointed out that in 1938 the maximum insurance available was \$5,000 and the cost was 25 cents for each four hours of scheduled flying time. This cost had dropped to 25 cents for any single trip of seven days by August 1, 1945.

Under new charges due to go into effect in March, Mr. Landis stated, an airline passenger will be able to get as much as \$25,000 insurance in multiples of \$5,000, at a cost which has been reduced to 25 cents on each \$5,000 for trips as long as 30 days.

In connection with the Board's work of setting up safety regulations and investigating accidents, Mr. Landis described measures taken and those under study for remedying airworthiness deficiencies in aircraft and operational procedures.

Studying Developments—The Board is following closely the development of a number of products which will become the subject of regulation when they are achieved, he said. Among these are the development of hydraulic fluids which will not be inflammable; non-toxic fire extinguishing agents which will be more effective than carbon-dioxide, and better methods of de-icing transport planes.

Most promising means of dealing with the ice problem
(See Landis Statement, page 17)

Part 42 Revisions Set Nonscheduled Safety Standards

New safety rules for nonscheduled air carriers have been written into Part 42 of the Civil Air Regulations, bringing the requirements for nonscheduled carriers, particularly those using large multi-engine aircraft such as the Douglas DC-3 and DC-4 and the Lockheed Lodestar, more closely in line with the requirements set for scheduled carriers.

In making the revisions the Civil Aeronautics Board noted that a review of recent aircraft accidents indicated immediate need for additional operating requirements for nonscheduled carriers.

Rules for Large Planes—Different regulations now apply according to the size of the aircraft, with stricter flight time, experience, instrument, and fuel requirements added for operators using aircraft weighing 10,000 pounds or more.

An eight-hour limit, in place of ten, has been set for pilot duty in the cockpit or on the flight deck during any 24-hour period. A pilot must be given one 24-hour day off each week. The flight limit as a crew member is 100 hours a month (30 days) and 1,000 hours a year.

Additional pilots must be provided on flights of more than eight hours, the number depending on the length of the flight.

Pilot experience remains the same for those flying aircraft of less than 10,000 pounds, but pilots of larger aircraft must have 1,200 hours of flight time, with 500 hours of this cross-country; and 100 hours of night flying, with half of it cross-country.

In addition to the instruments previously specified, the larger planes on contact night or instrument flight are now required to have a second air-speed indicator and sensitive altimeter, pitot heater, rate-of-climb indicator, artificial horizon indicator, and an additional source of energy to supply gyroscopic instruments.

The larger aircraft must also have a 45-minute fuel reserve.

Apply to Both Classes—New maintenance rules, weather minimums and instrument approach and landing procedures apply to both classes.

Emphasis is laid on the pilot's responsibility for maintaining his plane in good condition, for deciding whether a flight can be continued safely when equipment breaks down in flight, and for holding or canceling
(See Part 42 Revisions, page 14)

CAA and State Officials in Region 2 To Hold Clinic on Aviation Problems

Seventeen aviation problems are scheduled for a discussion at a two-day aviation clinic March 19-20 at the Congress Hotel, Chicago, under the joint sponsorship of the Civil Aeronautics Administration and the State Aeronautics Commissions in that region.

Aviation matters coming up for consideration will be a result of a series of aviation conferences held in the respective states during the past few months. At the state meetings private flying groups, aircraft operators and industry representatives passed a series of resolutions which will be the basis for the discussions at the March sessions.

To Review Part 42—Part 42 of the Civil Air Regulations, which governs nonscheduled operations, and the CAA airport development program will be reviewed by the CAA as one of the highlights of the meetings. Air map improvement recommendations will be discussed by a representative of the Coast and Geodetic Survey on duty in the CAA third region office.

In addition to CAA and state aeronautics officials, members of the aviation press, manufacturers and interested groups are invited. The Civil Aeronautics Board will be represented in relation to accident investigation and the requirements set up by that Board under Part 42 of the Civil Air Regulations.

CAA third region officials recommend that the various state aircraft trades associations, personal flying groups and other interested groups submit the material listed below to their state organizations before the March meetings and have their delegates appointed and instructed well in advance of the clinic.

List of Resolutions—Given below is an outline of state meeting resolutions which will be brought to the attention of the clinic.

1. That existing regulations pertaining to operations in and about airports (including airport separation) be codified, indexed, and readily made available.
2. That regulations pertaining to private flying operations and the maintenance of aircraft be recast in a simplified form.
3. That uniform and less costly aids for the personal airport be developed and made available; particularly those aids involving use of radio and of lights, including identifying beacons.
4. That personal aviation be provided more experimental development by federal agencies engaged in broad aeronautical experimental activity.
5. That personal airplane and powerplant requirements be simplified, thereby lessening the skilled technique now necessary in their operation and maintenance.
6. That the interior instrument panel lighting and exterior lighting of personal aircraft be improved.
7. That personal aircraft maintenance and operating costs be placed on a known cost basis insofar as possible by standardizing manufacturing and maintenance practices.
8. That the states' airport systems be integrated with the states' transport systems, thereby permitting airports in all categories to receive benefits from the states.
9. That the states hasten the designation of water bases for personal aircraft.
10. That every effort be made to hasten establishment of air markers.
11. That states publish and distribute adequate aeronautical news sheets.
12. That states initiate an aviation education program in conjunction with the State Departments of Education.
13. That the present private pilot flight curriculum be studied to develop flight instruction less obnoxious to the non-flying public, less monotonous to the trainee, and directed toward developing a maximum utilization of personal aircraft for transportation purposes.

This revision of the private pilot flying course to be accomplished without lowering existing safety standards.

14. That local air shows as they are presently conducted be all but eliminated as a future practice.

15. That detailed where-to-go information be readily available in pilot rooms of all personal airports.

16. That a nation-wide aeronautical accident prevention program be organized and effectively accomplished.

17. That personal airplanes be quieted internally and externally, particularly in regard to propeller and engine exhaust noises.

ATA Survey Shows Extent Of State Aviation Legislation

The extent of the states' present activities in aeronautics was measured by the Air Transport Association in a recent survey made of the legislative machinery set up in the various states for aviation promotion, enforcement of safety rules, airport aid and other phases of aviation.

All but three states, Arizona, California and Kansas, have set up state aeronautics bodies to administer state programs, the survey shows.

State registration or licenses for aircraft are required by 21 states; for airmen, by 20 states; air schools, 15; and airports, 25.

A large number of states, 29, have made no provision yet for enforcing safety regulations and other aeronautics laws. In four, Alabama, Illinois, Louisiana and Minnesota, the state police have been assigned this work.

All but thirteen states have some kind of state airport program. Twenty-six have state-owned airports. Others give financial or technical aid.

Based on the survey, the Civil Aeronautics Administration has drawn up a chart showing the scope of aviation activity in each of the states. Copies of the charts may be obtained from the CAA Office of Aviation Information, Department of Commerce, Washington 25, D. C.

Part 42 Revisions

(Continued from page 13)

celling a flight until satisfactory repairs or replacements can be made.

An engine must be given major overhaul after every 1,000 hours of operation—or at shorter intervals if needed.

The contact flight weather minimums for clearance, take-off and landing are a 1,000-foot ceiling and a visibility of one mile (day) and two miles (night).

When landing or taking off on instrument flight, the pilot must observe the ceiling and visibility minimums specified for the airport in the CAA Flight Information Manual or otherwise authorized by the CAA. In no case is the pilot allowed to take off on instruments with a ceiling less than 300 feet and visibility less than one mile.

The rules for making instrument approaches and landings conform with those set for scheduled carriers, including the recent change calling for strict observance of weather reports on ceiling and visibility minimums.

Effective July 15, pilots flying under instrument rules must be checked out every six months by the CAA.

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Civil Aeronautics Administration
T. P. Wright, Administrator

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ACC Surveying 19 Ports of Entry To Speed Clearance

A survey aimed at cutting down on delays which have proved to be one of the headaches of international air travel was launched January 13 by the Air Coordinating Committee through its Subcommittee on Facilitation of International Civil Aviation.

To Visit 19 Airports—Nine representatives of U. S. government agencies and private industry concerned with the problems of international air travel will visit 19 major airports of entry. They will make on-the-spot recommendations after going through typical clearances and conferences with government officials, airport personnel and representatives of the airlines and the aviation industry. Speed and efficiency in clearing persons through the airports of entry will be the object of the surveys.

Upon completion of the survey the committee will discuss the over-all conditions found at the ports of entry around the country and make necessary recommendations to the agencies concerned as a means of breaking the bottlenecks at the international airports.

Four Stages—The itinerary for the survey has been broken down into four sections, the first, starting January 13 included visits to LaGuardia Field, N. Y.; Burlington, Vt.; Montreal, Canada; Boston, Mass.; and Buffalo, N. Y. The committee is traveling by air in a CAA plane.

The second section of the survey was started early in February with visits to Miami, Fla.; San Juan, Puerto Rico; and New Orleans, La.

The third section of the survey will cover the Southwest and will include visits to Houston, Brownsville, El Paso, Fort Worth, and San Antonio, Tex.; Los Angeles and San Francisco, Calif.

In the fourth and final section of the survey the committee will visit Detroit, Mich.; Windsor, Canada; Chicago, Ill.; Cutbank, Mont.; Seattle and Bellingham, Wash.

To Serve Montego Bay, Jamaica

Service to Montego Bay, Jamaica, has been granted Pan American Airways on its route from Miami to Balboa, C. Z. and Barranquilla, Columbia; and also to Chicago and Southern Air Lines on the carrier's route from Houston and New Orleans to San Juan, Puerto Rico, and Caracas, Venezuela. Increased traffic is expected from the development of Montego Bay as a tourist resort, the Board said.

CIVIL AERONAUTICS JOURNAL

Book Tells Airmen How to Organize Small Businesses

The prospects airmen have of turning their wartime aviation training into a peacetime living are described in a new book, "Opportunities for Establishing New Businesses in Aviation," published by the U. S. Department of Commerce.

Directed at the man with a limited amount of capital—under \$50,000—the book points out the various opportunities that exist in aviation for him to organize and operate his own business, and gives him information on how to go about it.

Air Cargo Field—Among the possibilities discussed is that of carrying air cargo on a nonscheduled basis, a small business venture that has grown since the war until more cargo is being carried by recently organized businesses than by all the established airlines combined.

In addition to charter flying of cargo and passengers, the book discusses crop dusting; seeding and spraying; aerial photography; aerial patrolling of pipelines and electric lines; flying schools; mechanics training schools; instrument and radio repair services; airport operation, and selling of aviation insurance and accessories.

A description of the business is given to familiarize the prospective aviation businessman with its nature and problems. He is acquainted with the qualifications needed in the operator, the capital required and the profit prospects. Each chapter goes into detail on how to set up the business and finally how to operate it with the most hope of financial success.

Consulted Successful Operators—"Opportunities for Establishing New Businesses in Aviation," was written by Richard H. Rush, aviation consultant, Chairman of the Aviation Committee of the American Marketing Association, and until recently in charge of aviation for the Office of Domestic Commerce. Assisting him were a number of operators of aviation businesses who have been outstandingly successful. The Civil Aeronautics Administration also cooperated.

Dr. Rush points out that of all the training which the armed forces and wartime industrial plants gave to men during the war years, aviation training ranks near the top in having a peacetime commercial value. Aviation is in its period of most rapid expansion just at the time pilots, navigators, mechanics, instructors and all the rest of the skilled men in wartime aviation are looking for job opportunities and opportunities to establish their own businesses.

Calls for Hard Work—He warns, however, that although aviation is of tremendous importance as an industry, it has never been particularly profitable. Few people have been made rich by it. Whether the future will be any better than the past remains to be seen, but there is little indication of easy money. Rather it represents an opportunity for a number of trained men who are willing to work hard for a reasonable return.

Because the business is not characterized by large profits, only those organizations run by well-qualified and well-trained men will come out in the "black," he said. Aviation is a business just like any other business. It must be organized and run by qualified administrators who are able and willing to operate on sound business principles. It is not for the flyer or mechanic who wants to go into business as an excuse to follow a pleasant occupation. Rather it is for the businessman who has the specialized knowledge required for a particular branch. For this type of man, aviation can be a profitable business.

The new 250-page book, "Opportunities for Establishing New Businesses in Aviation" is on sale at 40 cents a copy by the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

FEBRUARY 15, 1947

Pilot Must Carry Certificate

Under a new amendment to the Civil Air Regulations (43.400), a pilot must carry his pilot certificate at all times while using an airplane.

The amendment, effective February 15, also requires the pilot to show his certificate upon request to any CAA inspector or any state or local law enforcement officer. Earlier regulations were not specific on these points and had been variously interpreted.

CAA Flight Information Manual Enlarged in Second Edition

The second edition of the Flight Information Manual has been issued by the Civil Aeronautics Administration to serve as a reference book for pilots. It includes five new chapters, thus being an enlargement of the first edition.

Published twice a year, the Flight Information Manual features information of a more permanent nature than that contained in its companion book, the bi-weekly Airman's Guide.

In addition to the information previously supplied, the new edition has an aeronautical radio facility index listing the locations of the towers, ranges, fan-markers and homing facilities operated in the United States, and a list of air navigation facility radio call letters.

The list of standard broadcast stations, formerly limited to stations of 1000 watts or more power, now includes all standard stations. Data on Loran facilities are now included in Chapter VI along with Coast Guard DF information.

The Digest of Air Traffic Control Procedures, Airway Radio Communications Procedures, and Foreign Entry and Flight Requirements, being more or less permanent, have been transferred to the Manual from the Airman's Guide.

Single copies of the Flight Information Manual sell for 15 cents each; while single copies of the Airman's Guide are 30 cents each. The annual subscription price covering two copies of the Manual and 26 copies of the Guide is \$7.50.

Address requests with accompanying payment in check or money order to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

709 Family-size Airplanes Built by Industry in November

Completion of 709 three and four-place planes during November exceeded any previous monthly production for this size of personal plane.

Airplane production, civilian and military, dropped off in November in terms of total units, with 3,093 planes shipped compared with 4,668 in October. Total valuation of \$28,719,722 in November shows only a slight decrease from the \$31,950,578 October figure.

November shipments to civil customers totaled 2,960 airplanes—the smallest number of units shipped in any month since April. The unit value of civil aircraft shipments has increased steadily since last June and advanced from \$3,243 in October to \$5,162 in November.

The November 1946 civil plane shipments follow:

	November	October
Total.....	2,960	4,500
By number of places:		
2-place.....	2,218	3,920
3 and 4-place.....	709	553
Over 4-place.....	33	27
By number of engines:		
1-engine.....	2,927	4,475
Multi-engine.....	33	25
By total rated hp (all engines):		
1-74 hp.....	1,483	2,441
75-99 hp.....	614	1,207
100-399 hp.....	830	825
Over 399 hp.....	33	27

Pilots Must Observe All Ceiling Reports Under Revised Rule

As an emergency measure the Civil Aeronautics Board has tightened up the approach limitation rule (61.752) by requiring pilots to observe all Weather Bureau reports on ceilings—indefinite, estimated, precipitation, aircraft and balloon—as well as those actually "measured."

The revised rule states that a pilot cannot make an instrument approach or landing at an airport when the latest U. S. Weather Bureau report for that airport indicates that either the ceiling or visibility is below CAA minimums set for that particular airport.

Previously, enforcement hinged on pilot observance of "measured ceilings" reported by the Weather Bureau. When the ceiling was not actually measured the pilot was permitted to come down to his approved minimum altitude over an airport to determine for himself whether or not he could see the airport clearly enough to make a safe landing.

A ceiling is usually measured by projecting a light beam at the clouds. Since only about 25 percent of the official reports during marginal weather are determined by such measuring devices, the regulation permitted wide use of pilot discretion.

A study of recent airline accidents has indicated a tendency on the part of some pilots to make low approaches in marginal conditions, with a result that the ultimate approach brings the aircraft in below established minimums, the Board said.

In each of four recent accidents, Birmingham, Cheyenne, Cleveland and Alexandria, evidence indicated that the ceiling was reported as below the prescribed minimums, but was not a measured ceiling. Under the old rule the pilot was within his rights in letting down to the minimum to investigate. However, the fact that an accident occurred in each case indicated that the pilot continued on below despite that fact that the ceiling was not clearly at or above the minimum.

The problem of instrument approach procedures and weather minimums is now being studied by the air carriers, the CAB and the CAA to consider the desirability of further change to 61.752.

New Part 35 Sets Requirements For Flight Engineer Certificates

Flight engineers have been added to the list of airmen who must hold certificates. The standards required of flight engineers are provided in a new Part 35 of the Civil Air Regulations, adopted by the CAB. Part 35, "Flight Engineer Certificates," will be effective March 15, 1947.

In addition to other requirements, the applicant must pass both written and practical tests.

The written examination includes questions on the following subjects pertaining to 4-engine transport aircraft: (a) responsibilities and limitations of a flight engineer as specified in the CAR's; (b) theory of flight and elementary aerodynamics; (c) aircraft performance and aircraft engine operation with respect to limitations; (d) mathematical computations of engine operations and fuel consumption, including basic meteorology with respect to engine operation; (e) aircraft loading and center of gravity computations; (f) basic aircraft maintenance and operating procedures.

In the practical test the applicant must demonstrate competency in both normal and emergency duties relating to aircraft, engines, propellers, and appliances, and be able to recognize malfunctioning of any of these and take appropriate action.

Radar's Role as Traffic Control and Landing Aid Outlined by Wright at Congressional Hearing

(Continued from page 13)

radar, whereby a controller on the ground can "talk down" a pilot in an aircraft to a landing.

"The GCA equipment and technique were highly secret war-time developments. It was not until late in 1944 that CAA personnel were permitted to know about them and it was not until January 1945, that the equipment was shown to them and the technique demonstrated.

"The CAA, being vitally interested in anything which shows promise of aiding air navigation or air traffic control, requested the Army to lend a set of GCA equipment for experimentation at the CAA Experimental Station, Indianapolis. The Army complied with this request in May 1945.

"In order to expedite its determination as to the adaptability of GCA to civil aviation, the CAA, in July 1946, entered into an agreement with the Army, Navy and Air Transport Association whereby three Army GCA sets, incorporating some of the improvements found necessary during the Indianapolis experiments, are being installed at Washington, New York and Chicago. These sets, lent by the Army, will be installed by ATA and operated and maintained by CAA.

GCA Disadvantages—"The experimental operation of GCA at Indianapolis has yielded much valuable information—some of it favorable and some of it unfavorable. Certain disadvantages from a civil operation viewpoint were obvious immediately. These were: (1) The number of operating personnel was excessive. (2) The operation was separate and not integrated with other traffic control operations. (3) Maintenance was excessive in replacements and in man-hours.

"Modifications and improvements made at the Experimental Station have succeeded in reducing these disadvantages considerably. The original operating crew of five has been reduced to three and work now in progress shows promise of reducing this still further to two.

"The CAA development engineers succeeded in removing a portion of the GCA indications to the traffic control tower, thereby enabling GCA to be coordinated with other traffic control operations.

"Some improvement in maintenance has been made, but not nearly enough to be considered satisfactory. However, it is believed that a change from the present mobile status to fixed status will eliminate some of the present troubles.

"The CAA's experience with GCA since May 1945, substantiates that of the Army, Navy and foreign military forces who used the system during the war. That is, GCA can be used to "talk down" a pilot to a safe approach. However, CAA experience indicates that the GCA landing procedure as the sole civil aviation aid will not be as dependable, and consequently not as safe, as that utilizing the CAA instrument landing system.

"The three-element ILS of the CAA has proved its dependability over a number of years. No part of the equipment, ground and airborne, depends upon human manipulation for its proper functioning. It is fixed and only an equipment failure can cause malfunctioning. Years of constructive development work have made equipment failures rare occurrences.

"GCA equipment is inherently much more complicated and it is doubtful if it can ever be developed to a state of dependability equivalent to that of the ILS equipment. Even if it were, the fact that its functioning depends upon manipulation by the crew makes it liable to human error and, therefore, less safe.

"The larger the crew, of course, the greater are the chances of error. The CAA's endeavor to reduce the number of operators is with a view to greater safety as well as reduced operating costs.

Give Same Information—"The information given the pilot using GCA is exactly the same as that given the pilot using ILS; namely, his distance from the approach end of the airport runway, his azimuth position with respect to the direction of the runway, and his vertical position with respect to the correct glide path. The difference between the operation of the systems is that with GCA this information is relayed to the pilot by voice from a controller on the ground, whereas with ILS the pilot obtains the information directly by looking at an indicator and lights on his instrument board.

"It is obvious that the pilot on ILS gets his instructions immediately, whereas the pilot on GCA must bear a time lag during which the indications on the scopes must be interpreted and transmitted to the controller who, in turn, instructs the pilot. Of course, if a pilot prefers verbal instructions, he can get these with ILS by simply having his co-pilot read the indications on the instrument board and relay them to him verbally.

"The range of the search portion of the GCA equipment is much too short for proper and safe civil operations. Experience at the Experimental Station shows that the practical day-in day-out dependable range is only 12 miles. This is insufficient for the control of traffic and the leading of aircraft into the landing area. Admittedly, aircraft have been seen as far off as 30 miles, but 12 miles has been determined by experience as the maximum dependable range.

"The range of the precision portion of the GCA equipment is satisfactory. However, this portion of the equipment is critical in adjustment and the alignment must be continually checked.

"In bad weather, when landing aids are needed, radar sometimes fails. Our experience has disclosed that driving rain and snow are indicated on the scopes and obscure the aircraft indications. This, of course, means that radar alone should not in our opinion be used as a navigation or traffic control aid.

Automatic Pilot Hook-Up—"The indications from ILS which are presented upon suitable meters in the aircraft may be used to actuate the automatic pilot so that the aircraft will automatically follow the desired approach path. Automatic approaches accomplished in this way are made with a great deal more precision than is possible with the aircraft under human pilot control. GCA does not provide a means for controlling automatic flight.

"One advantage claimed for GCA over other approach systems is that no airborne equipment is required other than the transmitter and receiver employed for communications. It must be borne in mind, however, that aircraft engaged in instrument operations require airborne navigation equipment for en route flying and for navigation to within range of the instrument approach system. In the case of the ILS, instrument approaches are made using the same airborne equipment that is required for en route navigation and communication with the addition of a glide path receiver. Thus, there is no significant difference in the equipment requirements for the two systems.

Promising Aid to ILS—"When GCA is considered as a supplementary aid to ILS, its use presents definite operational advantages. First, perhaps, is that it would serve as an emergency standby in the event of a failure of the ILS equipment. Second, it would provide a means for surveillance monitoring of approaches and permit warning to be given to a pilot if he were seen to be getting into a hazardous situation. Thus, it would provide traffic controllers with the aircraft's position in elevation during final approach in addition to azimuth and distance information available from airport search radar.

"The CAA considers radar surveillance by its air

CIVIL AVIATION HIGHLIGHTS

Total Registered Aircraft, Jan. 1, 1947...	85,000
Scheduled Air Carrier Aircraft, Jan. 1, 1947	826
Domestic.....	676
International.....	150
Airports in Operation, Jan. 1, 1947.....	4,490
Commercial.....	1,929
Municipal.....	1,424
CAA Intermediate.....	201
Military.....	780
All others.....	156
Airmen licenses issued during 1946:	
Student.....	173,432
Private.....	62,581
Commercial.....	42,130

"Civil Aviation Highlights," a new feature of the CAA Journal, each month will present significant information on important phases of civil aviation.

traffic controllers of a fairly large area surrounding an airport very important. This provides the controllers with a complete picture of the air traffic pattern and is a decided forward step over the older method of picturing the pattern by means of radio communication with the aircraft involved.

"The radar equipment for this purpose can be presently available search radar modified to suit civil purposes or the search portion of GCA radar vastly improved such that it is the equivalent of other search radars.

"In conjunction with the search radar, the CAA will use the precision portion of GCA at airports where local conditions warrant its use to monitor the landing of aircraft on the ILS. Further, it will be used to the best advantage in aiding an aircraft in distress. Still further, it will be used under instrument conditions when a pilot requests GCA. Under contact conditions, it will be used on request by a pilot desiring it for familiarization purposes.

ILS Has World-Wide Approval—"The CAA's policy has been endorsed by all interested U. S. agencies. These are: Army, Navy, Coast Guard, State Department, FCC, CAB, ATA, Aeronautical Radio, Inc., ALPA, manufacturers and others. In addition, the ALPA has taken a very definite stand in opposition to GCA and has expressed its views editorially in its publication, "The Airline Pilot."

"Representatives of these agencies formed the U. S. delegation to the meeting of the Special Radio Technical Division of PICAQ called in Montreal in November, 1946, for the purpose of standardizing radio air navigation aids on a world-wide basis. This division of PICAQ recommended the adoption of the CAA instrument landing system for world-wide use. This recommendation was the result of not only the unanimous agreement of all of the nations represented, but also of the unanimous agreement within each nation's delegation.

"The CAA, therefore, considers that its instrument landing policy has world-wide approval.

"CAA hopes to purchase and install, during fiscal year 1948, 25 airport surveillance radars and two longer range surveillance radars for use in traffic control centers.

Army May Lend 20 GCA Sets—"The CAA has just learned of the possibility that the Army will lend a further 20 GCA sets. If this loan is consummated and the necessary funds are made available, the CAA will install some of these sets at near-by alternates to main terminals for emergency use. By using the GCA at the alternates instead of the main terminals, the proper traffic patterns at the main terminal will not be confused. This is a service test interim period proposal. We will recommend that the remainder of the equipment lent (provided funds are made available) will be modified and installed at main terminals in a manner similar to that of the New York, Chicago and Washington installations.

"Further purchase, installation and operation by the CAA of GCA will depend upon the results of this service test program."

Domestic and International Safety Record 1939-1946

	1939	1940	1941	1942	1943	1944	1945	1946
Combined Domestic Territorial and International:								
Number of fatal accidents	3	3	5	5	3	4	10	11
Airplane miles flown ¹	90,976,063	119,517,713	148,211,544	130,493,220	123,657,819	166,512,447	250,819,687	364,082,000
Plane miles/fatal accident	30,325,354	39,839,238	29,642,309	26,098,644	41,219,273	41,628,112	25,081,969	33,098,364
Passenger fatalities	19	35	37	55	32	65	93	113
Crew fatalities	7	10	9	16	12	10	22	34
Total passenger miles ²	831,818,242	1,265,164,059	1,676,949,226	1,750,228,685	1,926,605,555	2,616,488,815	4,021,779,965	7,204,000,000
Passenger miles/passenger fatality	44,253,592	36,147,516	45,322,952	31,822,339	60,206,424	40,253,674	43,244,946	62,643,478
Passenger fatalities per 100 million pass. miles flown	2.26	2.77	2.21	3.14	1.66	2.48	2.31	1.60
Domestic (including territorial):								
Number of fatal accidents	2	3	4	5	2	3	8	9
Airplane miles flown ¹	83,396,961	109,922,178	134,447,558	111,406,804	105,199,955	144,239,738	218,189,135	305,082,000
Plane miles/fatal accident	41,698,481	36,640,726	33,611,890	22,281,361	52,599,978	28,847,948	27,273,642	33,898,000
Passenger fatalities	9	35	35	55	22	48	76	75
Crew fatalities	3	10	9	16	8	10	12	22
Total passenger miles ²	756,555,435	1,150,661,788	1,508,182,779	1,501,674,209	1,669,227,104	2,297,782,195	3,554,714,828	6,067,000,000
Passenger miles/passenger fatality	84,061,715	33,133,194	43,090,937	27,303,167	75,873,959	47,870,462	46,772,564	80,893,333
Passenger fatalities per 100 million pass. miles flown	1.19	3.02	2.32	3.66	1.32	2.09	2.14	1.24
International:								
Number of fatal accidents	1	0	1	0	1	1	2	2
Airplane miles flown ¹	7,579,102	9,595,535	13,763,986	19,086,416	18,457,864	22,272,709	32,630,552	59,000,000
Plane miles/fatal accident	7,579,102	No fatality	13,763,986	No fatality	18,457,864	22,272,709	16,315,276	29,500,000
Passenger fatalities	10	0	2	0	10	17	17	140
Crew fatalities	4	0	0	0	4	10	12	12
Total passenger miles ²	75,262,807	105,502,271	168,766,447	248,554,476	257,378,451	318,706,620	467,065,137	1,137,000,000
Passenger miles/passenger fatality	7,526,281	No fatality	84,383,224	No fatality	25,737,845	18,747,448	27,474,420	28,425,000
Passenger fatalities per 100 million pass. miles flown	13.29	0	1.19	0	3.89	5.33	3.64	3.52

¹ Revenue 1946 figures estimated.

² Revenue and nonrevenue. 1946 figures estimated.

³ Includes 6 infants in arms, 3 children ages 3 to 11 years, and 2 company employees.

⁴ Includes 3 infants in arms and 2 company employees.

⁵ Includes 3 infants in arms and 3 children ages 3 to 11 years.

SOURCE: The above figures were developed by the CAA Aviation Statistics Division from records of the Civil Aeronautics Board. The 1946 figures are preliminary and subject to possible later revision.

Landis Statement

(Continued from page 13)

lem this far appears to be thermal anti-icing which is designed to prevent the formation of ice rather than removal after it has formed, he said.

The growing complexity of aircraft operation and the increasing number of controls and instruments which must be used by the pilot has made standardization of controls a continuing Board study in conjunction with the CAA, Army and Navy. Likewise, the need for additional crew members in large aircraft to relieve the pilot has been thoroughly studied, Mr. Landis said, indicating that the crew minimums will be changed in the near future.

He listed as other studies underway, more effective ground fire-fighting equipment, methods of emergency evacuation of aircraft while on the ground, and several features of aircraft design such as crash-resistant fuel tanks, improved safety belts, more crash-resistant aircraft structure, and flashing tail lights (now required only for air carrier aircraft).

Prompt corrective action has been taken by the Board where investigation of accidents has revealed need for changes in the regulations, Mr. Landis declared.

Stricter Approach Rule—He cited as one example, the recent change in the approach limitation rule revoking the pilot's right to let down from his last approved cruising altitude to the CAA minimum to see if he could land safely when a measured ceiling was not reported.

Findings in four accidents—Birmingham, Cheyenne, Cleveland and Alexandria—indicated that the pilots continued descent when the ceilings were below CAA minimums.

Pilot time limitations have also been given extensive study by the Board as a result of the Birmingham accident, Mr. Landis said. There was some indication that the pilot may have been unduly fatigued in view of a long flight under instrument conditions involving head winds and turbulent air. More favorable flight duty periods for airline crews have been put into effect for nonscheduled carriers, and will soon go into effect for scheduled carriers.

Part 42 Overhauled—Investigation of two accidents to nonscheduled air carrier aircraft involving

47 fatalities, led the Board to make a thoroughgoing revision of Part 42 of the Civil Air Regulations dealing with safety standards for nonscheduled carriers. These regulations lift the safety requirements for nonscheduled carriers operating aircraft of the twin-engine or four-engine type to practically the same level as that of the scheduled airlines.

Mr. Landis said that because of the characteristics of nonscheduled operations it is still impossible, as a practical matter, to bring about a complete parity of safety standards between the two types of operations.

He said that the investigation of accidents has also increased the vital interest and concern of the Board in the more extensive development of landing aids.

Resurveying Minimums—"Pending the development and installation of devices of this character, the Board initiated and is carrying out with the Civil Aeronautics Administration a procedure whereby ceilings and methods of approach will be adjusted more adequately to existing landing and navigation aids. This program will slow down the tempo of air transportation," Mr. Landis said, "but it is believed there will be dividends in terms of increased safety and elimination of some portions of the accidents which have recently occurred during landings in marginal weather."

Airport Act and CAA Rules

Available in New Publication

For the convenience of participants in the National Federal Airport Program all of the requirements governing federal-aid airport projects have been gathered into one booklet, "Regulations for Administering Federal Airport Act," and issued by the Civil Aeronautics Administration.

The publication contains the Federal Airport Act passed by Congress, and the CAA regulations for administering the Act.

The three new Regulations of the Administrator printed in full in the text are: Part 550—Federal Airport Program; Part 555—Transfer of Federally Owned Lands; and Part 560—Claims.

Requests for copies of the booklet should be made to the nearest CAA district office.

CAA Asks Aircraft Owners

For Private Flying Data

The Civil Aeronautics Administration will shortly begin a survey of aircraft owners in an effort to obtain vitally needed statistical data concerning the type and amount of private flying which took place last year.

Results of this survey should provide a reliable index of the present status of civil aviation and the trend of its future growth and development. Such information will enable the Civil Aeronautics Administration to plan more accurately a progressive program for the promotion of cheaper and safer private flying which will be of direct value to all aviation enthusiasts.

The various aviation industry and pilot groups have indicated their deep interest in the CAA survey and have cooperated in drawing up the questionnaire that will be used.

The survey will be conducted by mail and will consist of a double postcard mailed to aircraft owners, with one-half to be filled out, torn off, and returned to CAA. Because of the expense which would be involved in contacting all aircraft owners, the survey will be conducted on a "sample" basis, with approximately one in four owners receiving postcard questionnaires. It is, therefore, important for all aircraft owners who receive survey cards to complete and return them as quickly as possible.

The principal information requested will be the number of hours logged during 1946 for each of the different types of flying: (1) Personal, other than business (pleasure, etc.); (2) Business (company, corporation, personal business, farming, etc.); (3) Instruction; (4) Transportation for hire, passengers and cargo (charter, contract, non-scheduled); (5) Other revenue producing (sight-seeing, crop-dusting, rental, etc.); (6) Other.

Helicopter Rules Proposed

Special rules governing use of helicopters have been proposed as new amendments to Part 60, Air Traffic Rules. A draft of the proposed rules is being circulated for industry comment.

Board Selects Three New Carriers For North Central Feeder Service

Feeder line routes totaling 4,393 miles in the North Central Area have been designated by the Civil Aeronautics Board and the three new carriers, Wisconsin Central Airlines, Iowa Airplane Company, Inc. and Parks Air Transport, Inc., have been selected for local service on a 3-year basis.

In the same proceeding the Board granted additional stops to six trunkline carriers: American, United, Inland, Northwest, TWA and Mid-Continent.

The area extends from Lake Michigan west to Idaho and from Missouri and Kansas north to Canada.

Withholds Certificate—In this particular proceeding, sixth of the regional cases decided in the past year, the Board is withholding the feeder certificates until a reasonable number of intermediate points have adequate airports. The routes are anchored at both ends by comparatively strong terminals, the Board pointed out. Unless feeder carriers can serve intermediate points they will be competing with trunkline carriers, and, also, they will not be performing their main objective—that of giving air service to local points.

As an illustration, the Board cited the experience of Wiggins Airways, granted stops at 22 communities in New England. Of the 13 points slated for first air service, Wiggins has sought suspension of service to 10 due to lack of adequate airports.

Wisconsin Central—Wisconsin Central Airlines system will bring local service to about 30 cities in northern Illinois, eastern Wisconsin, northern Michigan and Minnesota, connecting them with Chicago, Marquette, Duluth and Minneapolis-St. Paul.

The executive personnel of the new carrier are experienced in air transportation, having operated private plane service for the Four Wheel Auto Drive Company of which it is now a subsidiary. Since 1939 the company has flown an average of 120,000 miles a year with a perfect safety record. The carrier has stated that it will sever its connection with the parent company.

Parks Air Transport—Parks Air Transport has three routes stemming out of Chicago to Sioux City

and Des Moines, Iowa, and Minneapolis-St. Paul, Minn., and another from Milwaukee, Wis., to Des Moines. The Chicago-Sioux City route will bring local service to the six industrial cities, Elgin, Rockford and Freeport, Ill., Dubuque, Waterloo, and Fort Dodge, Iowa, which range from 22,000 to 85,000 in size.

The carrier was organized by Parks Air College, the original applicant, and four subsidiary companies. The college began operations as a ground and flight school in 1927, and for the past 10 years has operated a noncommercial airline for three months each year as part of its flight course.

Iowa Airplane Company—The Iowa Airplane Company has three routes radiating out of Omaha, Nebr.—Council Bluffs, Iowa—one west through eight southern Nebraska cities to North Platte; the second north through seven cities to Huron, S. Dak., and the third northeast through Des Moines and Rochester to the Twin Cities.

The company was established in 1933 as a fixed-base operator and has engaged in flight instruction, aircraft sales, aircraft maintenance and overhaul, charter flying, aerial survey work and pilot training. It operated more than 60 airplanes during its pilot training phase. The president and vice president, pilots of 20 years' experience, have managed the company since it was started.

Most sought after trunkline stops in the North Central area were Milwaukee and Minneapolis-St. Paul. Both points now have transcontinental service on Northwest's New York to Portland and Seattle route. Milwaukee is a terminal on Pennsylvania-Central's eastern route to Baltimore and Washington, and the Twin Cities have southern service over Mid-Continent's system.

New Milwaukee Service—In the Board decision,

Milwaukee was added to United's and American's coast-to-coast systems to give the city direct connections with the west and southwest. United serves San Francisco through Des Moines, Omaha, Denver, and Salt Lake City, and American can provide direct service to Los Angeles through St. Louis, Tulsa, Oklahoma City, Fort Worth, Dallas and El Paso.

To minimize the competitive effects upon Northwest's and PCA's eastern operations, the Board restricted United's service to Milwaukee to flights originating or terminating at Omaha or points west and Cleveland or points east. American can serve Milwaukee only on flights originating or terminating at St. Louis or points west.

Decision on American and PCA service to the Twin Cities was deferred for consideration with Northwest's pending application for Detroit-Washington service to enable the Board to examine the two cases more completely and resolve them in terms of over-all public interest.

Additional Service—In addition to its Milwaukee stop, United's certificate was amended to include Cedar Rapids, Iowa.

Northwest was granted stops at Aberdeen, S. Dak., and Bozeman, Mont., to the west on route 3, and La Crosse, Wis., between Minneapolis and Chicago.

Inland's route was extended from Huron, S. Dak., to the Twin Cities through Brookings, Nebr., and Mankato and Rochester, Minn., site of the Mayo Clinic. The two western Nebraska cities, Alliance (6,253 population) and Chadron (4,262), were also placed on Inland's route, giving them air service to Cheyenne and Denver.

Peoria, Ill., now served by American and Chicago and Southern, was added to TWA's route 44 between Kansas City and Chicago, providing this city with alternate routings to both the East and West.

Mid-Continent's route 48 was extended from Des Moines to Sioux City, Iowa.

Landis and Lee Dissent—Chairman Landis and Member Lee dissented from the majority opinion which deferred PCA's and American's applications for Twin Cities service, basing the dissent on the following grounds: The difference of issues involved in the pending Detroit-Washington proceeding; the seriousness of a delay insofar as it affected the operations of PCA during the next year; the lack of diligence of Northwest in pressing its motion to defer consideration of PCA's application for Twin Cities service; the lack of consistency involved in approval of Northwest's motion to defer as compared with denials of similar applications in the past; the merits *per se* of PCA's application; the slightness of diversion of potential traffic from Northwest by PCA even were PCA to be certificated for its proposed route, and the necessity for strengthening PCA.

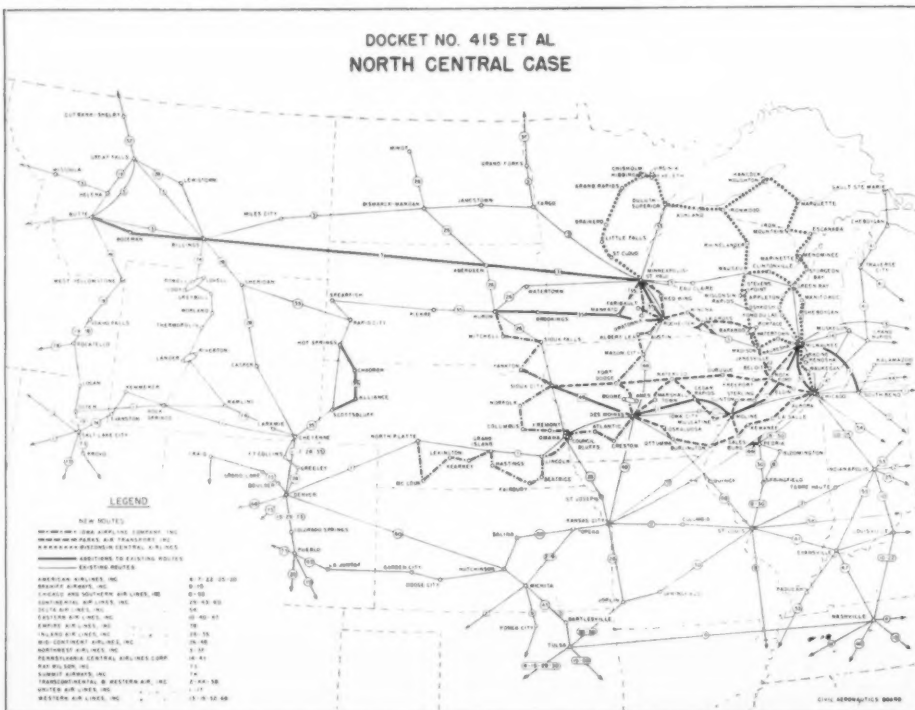
Board Grants Consolidations On Eastern and Delta Routes

Continuing the trend toward consolidation of routes to permit increased speed and efficiency in air carrier operations, the Board has granted Eastern Air Lines and Delta Air Lines permission to combine several routes within their systems.

Eastern's routes 10 and 40, the St. Louis-Evansville-Nashville segment on route 47, and the Jacksonville-Miami segment on route 6 have all been combined into a single route—No. 10.

This eliminates route junction points, requiring stops on all flights, at Atlanta, Nashville, Jacksonville and Tallahassee (redesignated as intermediate point) and makes it possible for Eastern to operate non-stop from both Chicago and St. Louis to Miami and other Florida cities.

The route 24 segments of Delta's system, Atlanta to Augusta; Augusta to Savannah; and Augusta to Charleston, have been combined with the carrier's route 54, thus permitting the carrier to fly non-stop between Atlanta, Jacksonville and Miami.



CAB Accident Reports

Deviated from Airway—Deviation from the normal airways course at an altitude insufficient to assure adequate clearance over Elk Mountain in Wyoming is given by the CAB as the probable cause of a United Air Lines' crash into a mountain last year.

The accident occurred Jan. 31, 1946, when Flight 14 was en route from Boise to Denver, but the heavy snow covering the wreckage made it impossible to complete the investigation until June. The 21 occupants were killed.

Apparently the flight deviated from the airway in order to maintain a direct course between the Sinclair and Laramie, Wyo., range stations, the Board said.

Elk Mountain, 11,162 feet, is the highest terrain between Sinclair and Laramie within an area of 15 miles on either side of the direct course, and the dog-legged airway between the two points is designed to provide the most effective clearance from the high terrain to the south.

The airway eastward from Sinclair parallels the center of the east leg of the Sinclair range to the intersection with the northwest leg of the Laramie range. From this point it bends sharply to the right toward Laramie on a heading of 137°.

The distance between Sinclair and Laramie via Airway Green 3 is 88 miles while the distance between the two range stations on a direct course is 79 miles. The flight had deviated south of the airway approximately 4½ miles, and struck the southwest corner of Elk Mountain at an elevation of about 10,822, the point of impact being located on a direct line between the two range stations.

Overtook Smaller Plane—Blame for the air collision between a small civilian training plane and a Navy fighter at the Salt Lake City Municipal Airport, Aug. 26, 1946, is placed by the CAB on the pilot of the overtaking Navy plane for failing to observe and avoid the smaller craft.

Sun glare impaired the pilot's vision and contributed to the accident, the CAB said.

Commander Richard L. Fowler, pilot of the Navy plane, was headed toward a bright, low sun, and testified that he did not see the other plane prior to the collision. He had entered the traffic pattern and was flying approximately southwest.

Leverett H. Nugent, a student pilot with about 12 solo hours, was practicing solo take-offs and landings. He was flying south on the downwind leg of the traffic pattern.

The planes collided at an altitude of about 500 feet. Nugent was killed and his plane demolished. Fowler was uninjured, and his plane damaged only slightly.

Don't Drink and Fly

That first drink *before* flying is the "one too many" which all pilots must forego, a recent Safety Bulletin, "Don't Drink and Fly," warns pilots.

The bulletin points out that a surprising number of cases have been recorded where a blend of alcohol and aviation gasoline was transmuted into blood and tragedy.

After drinking liquor or with a "hangover," a pilot is *far less apt to get away* with any contingency such as a near collision, a necessary quick decision on weather, or an engine stoppage, the bulletin states.

Copies of the Safety Bulletin "Don't Drink and Fly" are on sale at 5 cents each by the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Air Regulations . . . As of February 1, 1947

TITLE	No.	PART			MANUAL		
		Price	Date	No. of Amendments	Price	Date	No. of Amendments
Aircraft							
Airworthiness Certificates.....	01	\$0.05	10/15/42	2	None	None	
Type and Production Certificates.....	02	.05	7/1/46	1	\$0.10	8/1/46	
Airplane Airworthiness—Normal, Utility, Aerobatic, and Restricted Purpose Categories.....	03 ¹	Free	11/13/45		None	None	
Airplane Airworthiness.....	04a	.15	11/1/43	5	.45	7/1/44	2
Airplane Airworthiness Transport Categories.....	04b ¹	Free	11/9/45	2	None	None	
Rotorcraft Airworthiness.....	06	.10	5/24/46		None	None	
Aircraft Airworthiness, Limited Category.....	09	.05	11/21/46		None	None	
Engine Airworthiness.....	13	.05	8/1/41		None	None	
Propeller Airworthiness.....	14	.05	7/15/42	1	.15	5/1/46	
Equipment Airworthiness.....	15	.05	5/31/46		No stock	7/1/38	
Radio Equipment Airworthiness.....	16	.05	2/13/41		Free	2/13/41	
Maintenance, Repair, and Alteration of Aircraft, Engines, Propellers, Instruments.....	18	.05	9/1/42		.50	6/1/43	
Airmen							
Pilot Certificates.....	20	.05	7/1/45	4	None	None	
Airline Pilot Rating.....	21	.05	10/1/42	3	None	None	
Lighter-than-air Pilot Certificates.....	22	.05	10/15/42	1	None	None	
Mechanic Certificates.....	24	.05	7/1/43	1 ¹	None	None	
Parachute Technician Certificates.....	25	.05	12/15/43	3	None	None	
Traffic Control Tower Operator Certificates.....	26	.05	10/10/45	1	None	None	
Aircraft Dispatcher Certificates.....	27	.05	7/1/46	1	None	None	
Physical Standards for Airmen.....	29	.05	1/10/46		None	None	
Flight Engineer Certificates.....	35	Free	3/15/47		None	None	
Operation Rules							
Air Carrier Operating Certification.....	40	.10	7/10/46	4	None	None	
Scheduled Air Carrier Operations Outside Continental U. S.....	41	.05	5/1/46	3 ²	None	None	
Nonscheduled Air Carrier Certification and Operation Rules.....	42	.05	8/1/46	5 ³	None	None	
General Operation Rules.....	43	.05	7/1/45	7	None	None	
Foreign Air Carrier Regulations.....	44	.05	7/1/45		None	None	
Transportation of Explosives and other Dangerous Articles.....	49	.05	7/1/45		None	None	
Air Agencies							
Airman Agency Certificates.....	50	.05	4/30/46		.15	5/15/46	
Ground Instructor Rating.....	51	.05	12/15/43	1	None	None	
Repair Station Rating.....	52	.05	10/1/42		Free	2/41	
Mechanic School Rating.....	53	.05	8/1/42	1	Free	5/40	
Parachute Loft Certificates and Ratings.....	54	.05	1/21/43		None	None	
Air Navigation							
Air Traffic Rules.....	60	.05	8/1/45	2 ⁴	.15	10/45	
Scheduled Air Carrier Rules.....	61	.10	8/1/46	3 ⁴	None	None	
Miscellaneous							
Rules of Practice Governing Suspension and Revocation Proceedings.....	97	Free	1/1/47		None	None	
Definitions.....	98	.05	10/15/42		None	None	
Mode of Citation.....	99	Free	11/15/40		None	None	
Regulations of the Administrator							
Aircraft Registration Certificates.....	501	Free	3/31/43		None	None	
Recordation of Aircraft Ownership.....	503	Free	3/31/43		None	None	
Notice of Construction or Alteration of Structures on or near Civil Airways.....	525	Free	7/23/43		None	None	
Seizure of Aircraft.....	531	Free	12/8/41		None	None	
Reproduction and Dissemination of Current Examination Materials.....	532	Free	1/15/43		None	None	

¹ Certain aircraft may comply with the provisions of this part or the 11/1/43 edition of Part 04. ² Special regulations 340, 340A and 340B. ³ Special regulation 355. ⁴ Special regulation 361, 361A, 361B and 385. ⁵ Special Regulation 385.

Note: Those parts and manuals for which there is a price are obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C. Remittances should be by check or money order, payable to the Superintendent. Currency is sent at sender's risk. Amendments and free Parts are obtained from the Publications Section, Civil Aeronautics Board, Washington 25, D. C.; free Manuals and Regulations of the Administrator from the CAA Office of Aviation Information, Dept. of Commerce, Washington 25, D. C.

DNL Granted Foreign Permit

For Route from Norway to U. S.

Norwegian Air Lines, Inc. (Det Norske Luftfartselskap A/S) (DNL) has been granted a foreign air carrier permit by the Civil Aeronautics Board authorizing service between Oslo and Stavanger, Norway, and the alternate U. S. terminal cities, New York and Chicago.

DNL's service may be routed over points in the United Kingdom, Eire, Iceland, The Azores, Labrador, Newfoundland, and Quebec, Canada. This wide latitude, the Board said, appeared to be justified by the reciprocal nature of the air agreement between the United States and Norway. American Overseas Airlines, a U. S. flag carrier, has been authorized to operate between the two countries over substantially similar routes.

Air Carrier Overseas Routes

Mapped by Coast and Geodetic

Two long range air navigation charts, designed for the overseas operations of U. S. commercial air carriers, and identified as "Aircraft Position Charts," have been published by the Coast and Geodetic Survey.

Chart No. 3071 covers the north Atlantic Ocean and adjacent regions of North America and Europe.

Chart No. 3072 covers western Europe and northwest Africa.

Like charts for additional areas are now in the planning stage. The two completed are available for 10 cents each at the Washington office of the Coast and Geodetic Survey, or the authorized agents for aeronautical distribution.

Airline Orders

E-167 cancels PCA's temporary wartime permit to serve Huntsville, Ala., as an intermediate point on route 55 between Chattanooga, Tenn., and Birmingham, Ala. (Dec. 9, 1946)

E-168 revokes Board exemption order allowing TWA to serve Palm Springs, Calif., as a defense measure. (Dec. 9, 1946)

E-169 discontinues TWA's temporary service to Long Beach, Calif., conducted during the war for the armed forces, and re-issues certificate. (Dec. 9, 1946)

E-170 dismisses joint application of Henry A. Roemer and Pennsylvania Central Airlines for approval of interlocking relationships. (Dec. 12, 1946)

E-171 grants City of Miami and Minneapolis-St. Paul Airports Commission leave to intervene in the Air Freight Case (docket 810 et al) and denies Air Dispatch's like petition. (Dec. 12, 1946)

E-172 approves interlocking relationships resulting in the positions held by Henry J. Friendly, George F. Fox, 3rd, and Erwin Balluder in Pan American Airways, Inc., and Pan American Airways Corp. (Dec. 12, 1946)

E-173 makes available for public inspection report forms 2780, 2780-W and 2380 and all management reports previously withheld for defense reasons, with the exception of certain reports filed by South American carriers and Pan Am's Latin-American division. (Dec. 12, 1946)

E-174 grants Chamber of Commerce of Opelousas, La., leave to intervene in the Mississippi Valley Case. (Dec. 13, 1946)

E-175 allows City of Albany, N. Y., to intervene in the Middle Atlantic Case. (Dec. 13, 1946)

E-176 adds Whitehorse, Canada, to Northwest's U. S.-Alaskan route in a supplemental opinion to the Pacific Case. Denies requests of PCA, Pacific Northern Airlines, Alaskan Airlines and City of Fairbanks for rehearing and reargument of the case. (Nov. 19, 1946)

E-177 grants National Airlines permission to serve Tampa and Miami, Fla., and Havana, Cuba, through use of Drew Field, 36th Street Airport, and Rancho Boyeros Airport, respectively. (Dec. 13, 1946)

E-178 grants Chicago and Southern permission to use Willow Run Airport in Detroit service. (Dec. 13, 1946)

E-179 orders investigation of agreement made by 13 air carriers to establish a consolidated air freight tariff. (Dec. 12, 1946)

E-180 grants Pan American temporary service to Willemstad, Curacao, N. W. I., on its operation between Ciudad Trujillo, D. R., and Caracas, Venezuela. (Dec. 16, 1946)

E-181 reopens for further hearing application of Hakon Christenson d. b. a. Christenson Air Service for air service between Anchorage and Seward, Alaska. (Dec. 17, 1946)

E-182 consolidates Christenson Air Service application (E-181 above) and the Pacific Northern Airlines proceeding directing the carrier to show cause why the Board should continue in effect its certificate for Anchorage-Seward service. (Dec. 17, 1946)

E-183 permits Port of New York authority to appear as amicus curiae in the Pan American Airways and Pan American-Grace Airways agreement case—docket 2423. (Dec. 18, 1946)

E-184 fixes Pan American's temporary rate of mail pay for transatlantic operations after Jan. 1, 1946 at 75 cents per mail ton-mile—issued with opinion. (Dec. 16, 1946)

E-185 sets a temporary rate of mail pay for Pan American's transpacific operations after Nov. 16, 1945 at 85 cents a mail ton-mile—issued with opinion. (Dec. 16, 1946)

E-186 sets a temporary rate of mail pay for American Overseas Airlines at 75 cents per mail ton-mile after Jan. 1, 1946—issued with opinion. (Dec. 16, 1946)

E-187 allows Thomas E. Gordon d.b.a. Orlando Airlines to use the aircraft and equipment of Florida Airways needed to begin feeder operations over its Florida route until final Board decision on dockets 2314 and 2399. The Board previously denied Gordon's application to transfer Orlando's certificate and certain assets to Florida Airways, a corporation owned by the applicant. Proceedings were reopened at Gordon's request. Prior to the denial the applicant had caused Florida Airways to purchase aircraft and equipment intended for use in the feeder operations which Orlando expected to begin Dec. 20, 1946. (Dec. 19, 1946)

E-188 sets temporary rate of mail pay for Empire Air Lines (Luhoe feeder carrier) at 25 cents per revenue plane mile after Sept. 28, 1946, date the carrier began operations. (Dec. 19, 1946)

E-189 dismisses, at carrier's request, application of Pacific Overseas Airlines for temporary exemption from Title IV of the Act. (Dec. 20, 1946)

E-190 denies application of Pacific Northern Airlines for exemption from sec. 401(a) of the Act. (Dec. 20, 1946)

E-191 orders entire record of proceeding involving application of TWA for approval of its agreement with the Italian Minister of Aeronautics be certified to the Board for decision. (Dec. 20, 1946)

E-192 permits Monarch Air Lines to temporarily suspend service at Cortez, Colo., and to serve Durango, Colo., in lieu of Cortez, as a terminal point on its southern route segment from Denver, and as an intermediate point on its Grand Junction, Colo.-Albuquerque, N. Mex., segment. (Dec. 23, 1946)

E-193 institutes an investigation concerning free round trip foreign and overseas air transportation for certain exchange students between certain Latin American countries and the United States. (Dec. 24, 1946)

E-194 denies petition of TWA and Western and request of United that the Board set aside its order E-83 which reopens the West Coast Case to reconsider American's application for authority to engage in air transportation between San Francisco and points on route 4 other than Los Angeles. (Dec. 24, 1946)

E-195 amends foreign air carrier permit of Air France—issued with opinion. (Dec. 10, 1946)

E-196 permits Lehigh Airport Authority to intervene in Cincinnati-New York case. (Dec. 30, 1946)

E-197 dismisses application of Varick D. Martin, Jr., d.b.a. Interstate Airlines for a certificate. (Dec. 30, 1946)

E-198 extends temporary exemption order until Dec. 31, 1947, allowing TWA to serve Madrid, Spain as an intermediate point between Portugal and Algeria. (Dec. 30, 1946)

E-199 allows Pan American temporary stop at Camaguey, Cuba, on its Miami-Canal Zone route pending Board decision on Havana stop in reconsideration of the carrier's application in the Latin-American case. (Dec. 30, 1946)

E-200 amends certificates of American, United, Inland, Northwest, TWA and Mid-Continent for additional service in the North Central Area and selects three new carriers, Wisconsin Central

Airlines, Iowa Airplane Company, Inc., and Parks Air Transport, Inc., for local service—issued with opinion. (Dec. 19, 1946)

E-201 to E-209 approve agreements between Pan American and Compania Mexicana de Aviacion, S.A., Compania Cubana de Aviacion, S.A., Panair do Brasil, S.A., Aeronaes de Mexico, S.A., Compania Dominicana de Aviacion, S.A., Bahamas Airways, Ltd., Aerovias Venezolanas, S.A., Servicios Aereos de Honduras and Lineas Aereas Costarricenses, S.A., respectively, relating to purchasing agencies and similar matters. (Dec. 27, 1946)

E-210 rescinds suspension of service at Santa Maria, Calif., on Southwest Airways' route 76. (Dec. 30, 1946)

E-211 approves certain portions of resolution 5 of the first meeting of the European Traffic Conference of the International Air Transport Association. (Dec. 31, 1946)

E-212 approves resolutions 8 and 11 of the second meeting of the IATA European Traffic Conference. (Dec. 31, 1946)

E-213 approves certain resolutions of the third meeting of the IATA European Traffic Conference. (Dec. 31, 1946)

E-214 approves extension until Oct. 3, 1947, of arrangement between Trans-Canada Air Lines and Yukon Southern Air Transport which permits Yukon to operate route between Fairbanks, Alaska, and Whitehorse, Canada. (Jan. 2)

E-215 permits Pan American to begin non-stop services between London and Frankfurt; London and Prague; Prague and Brussels; and Vienna and Frankfurt on its North Atlantic route. (Jan. 3)

E-216 amends order E-167 (see above) to make cancellation date of PCA's service to Huntsville, Ala., effective 30 days after Board issues its decision on the Southeastern States case. (Jan. 6)

E-217 approves transfer of the temporary certificate held by Gordon d.b.a. Orlando Airlines to Florida Airways in reconsideration of the proceeding and receipt of evidence that transaction between Gordon and Florida has been revised in accordance with the Board opinion Oct. 31, 1946, denying transfer. (Jan. 6)

E-218 dismisses application for a certificate of Western Washington Airways at the request of the applicant. (Jan. 7)

E-219 permits City of Omaha leave to intervene in the Great Lakes Area Case. (Jan. 7)

E-220 severs applications of Railway Express Agency and Paul J. Neff for approval of interlocking relationships in regard to Neff's position as director of Eagle Airlines, Inc., from docket 2543 for separate consideration as docket 2756. (Jan. 7)

E-221 approves applications of Railway Express Agency and Paul J. Neff for interlocking relationships—docket 2543. (Jan. 7)

E-222 grants foreign air carrier permit to TACA, S.A., for service between El Salvador, Central American Republic, and the U. S. cities, Miami and New Orleans—issued with opinion. (Dec. 18, 1946)

E-223 permits PCA to intervene in the joint application of TWA and Delta Air Lines for approval of an agreement relating to the interchange of equipment. (Jan. 9)

E-224 permits Philippine Air Lines to intervene in the matter of the application of Far Eastern Air Transport, Inc., for a foreign carrier permit, and denies Far Eastern's motion to dismiss Philippine's petition. (Jan. 9)

E-225 consolidates Eastern Air Lines' routes 10 and 40, the St. Louis-Evansville-Nashville segment of route 47, and the Jacksonville-Miami segment of route 6 (via Orlando, Vero Beach and West Palm Beach) into a single route to be known as route 10; also retains the consolidated segments as parts of route 47 and route 6. Consolidates Delta Air Lines' route 54 with the segments of route 24 from Atlanta to Augusta, and beyond Augusta to Savannah and to Charleston into a single route to be known as route 54. (Jan. 9)

E-226 authorizes Southwest Airways Company to suspend service temporarily at Marysville, Calif., on route 76. (Jan. 10)

E-227 grants Ellis Air Transport further hearing on its application for Ketchikan air service. (Jan. 10)

E-228 adds Utah Parks Co. to the list of carriers for which interlocking relationships were approved in orders 4410 and 2236 involving Fannin W. Charske and Edward G. Smith and Railway Express Agency. (Jan. 10)

E-229 approves interlocking relationships between TWA and four companies as a result of offices held by Warren Lee Pierson. (Jan. 10)

E-230 approves agreement between TWA and the Italian Minister of Aeronautics allowing TWA to acquire 40 per cent interest in Linee Aeree Italiane, an Italian carrier, provided TWA presents to the Board a proposed method of handling all matters of accounting with IAI. (Jan. 10)

E-231 grants Pan American leave to intervene in dockets 2142, 2187 and 2207 (applications of TWA, American and United for route amendments) and in the West Coast Case reopened by order E-83. Denies motion for deferment of all proceedings with respect to American's application for San Francisco service in West Coast Case, and United's application—docket 2207. (Jan. 13)

E-232 consolidates 20 additional applications with Freight Forwarder Case. (Jan. 13)

E-233 permits Port of New York Authority, American Overseas Airlines, Baltimore Association of Commerce, Air Transport Association, and the Department of Commerce to intervene in the Freight Forwarder Case. (Jan. 13)

E-234 permits the Kalispell Chamber of Commerce and Flathead County Airport Board, Malta Commercial Club, Duluth Chamber of Commerce, Glasgow Chamber of Commerce & Agriculture, and Williston Chamber of Commerce to intervene in the Chicago-Seattle Case. Denies petition of Sidney Chamber of Commerce. (Jan. 14)

E-235 dismisses Pan American's notice of non-stop service between Shannon, Eire, and Brussels, Belgium, upon finding that Pan Am's certificate requires it to stop at London. (Jan. 13)

E-236 orders hearing for the Air Charter Company on its application for permanent exemption from the requirements of labor legislation compliance in the Act upon the condition that applicant would pay its pilots a base rate of \$150 a month and \$3 an hour per revenue flying hour, until such time as the reduced volume of business would make necessary a reduction of base pay to \$100 a month and \$2 an hour per revenue flying hour. Dismisses request for temporary exemption pending decision on permanent exemption. (Jan. 14)

E-237 permits Gregg County, Tex., to intervene in the Mississippi Valley Case. (Jan. 16)

E-238 orders that entire record of proceeding in docket 2603 be certified to the Board for decision. (Jan. 17)

E-239 revokes order E-21 exempting the feeder lines Empire Airlines, Orlando Airlines, Monarch Air Lines, Southwest Air

ways, Summit Airways, West Coast Airlines, and E. W. Wiggins Airlines from the provisions of 407(a) and 407(d) of the Act, and Part 202 of the Economic Regulations. (Jan. 17)

E-240 permits Northwest Airlines to serve Minneapolis-St. Paul, Minn., through use of World-Chamberlain Field. (Jan. 17)

E-241 permits Eastern Air Lines and the City of Miami, Fla., to intervene in the Additional Service to Florida Case. (Jan. 20)

E-242 denies City of Juneau, Alaska, leave to intervene in the matter of Pan American's application for air service within the U. S. (Jan. 20)

E-243 permits Seattle Chamber of Commerce to intervene in the Pan American proceeding. (Jan. 20)

E-244 dismisses complaint of City of New Orleans in regard to service allotted it in the Latin American Case. (Jan. 17)

Airman Orders

Suspensions

S-32 suspends commercial certificate of Harold Benjamin Kleier for six months for breaking four Civil Air Regulations: flying at less than 1000 feet over congested area, 60.105(a); aerobatic flight over city, 60.104(b); carrying passenger in aerobatic flight without proper parachute equipment, 43.409; operating aircraft in a reckless, careless manner so as to endanger lives and property of others, 60.101. Kleier flew at low altitudes and performed shallow dives and steep climbing turns over Nampa City Acres, a congested area. He executed a loop over a golf course near Nampa City Acres. Neither he nor his passenger was equipped with approved parachutes. (Dec. 17, 1946)

S-34 suspends private pilot certificate of Marvin William Shores for 60 days for flying over campus of University of California, West Los Angeles, at less than 1000 feet. (Dec. 20, 1946)

SD-101 suspends commercial certificate of John McKinley Ready for four months commencing July 30, 1946. In addition to low flying, Ready made three take-offs on runway 19 when traffic was using runway 14 at the Sequin Airport, Tex. He also made turns while in the traffic pattern which did not conform to the pattern, thus violating CAR 60.106. (Nov. 27, 1946)

SD-102 suspends student certificate of Derward William Granger for six months. He executed power-on and power-off approaches and dives over land in the vicinity of a residence near Whittier, Calif. (Nov. 15, 1946)

SD-103 suspends student certificate of Victor F. Dub for six months. He "dipped" and "did a zoom" over his father's home near Everson, Wash., at an altitude of approximately 100 feet and shortly afterward crashed to the ground from about 50 feet. (Dec. 27, 1946)

SD-111 suspends student certificate of John W. Baker for six months, and until he has passed written examination of contact rules on Parts 43 and 60. Baker practiced acrobatic maneuvers over San Jose, Calif., and piloted aircraft at altitudes insufficient to permit emergency landings outside of this area. Baker said that he had not been instructed on the CAR's. (Dec. 27, 1946)

SD-112 suspends student certificate of Margo Sippel for six months for low altitude flying and careless, reckless operation. (Dec. 27, 1946)

Revocations

S-35 revokes commercial certificate of Walter Adolf Biehoff for careless, reckless flying over and in the vicinity of Attleboro, Mass. While carrying a passenger, he executed 20 dives over house-tops to within 30 feet of the ground, and performed loops and slow rolls at an altitude of less than 500 feet, thus breaking CAR 60.101—careless, reckless flying; 60.105(a)—the 1000-foot minimum over congested areas; 60.105(b)—endangering life and property by flying at less than 500 feet; 60.104(b)—aerobatics over congested areas; and 43.409—flying aerobatically while carrying passenger without proper parachute equipment. (Dec. 17, 1946)

S-37 revokes student certificate of James Chester Hatridge for carrying a passenger in violation of CAR 43.50. (Dec. 23, 1946)

S-38 revokes pilot certificate of John K. Secret. While holder of a student certificate, Secret staged a series of power dives from an altitude of 500 feet to within 50 to 75 feet over a residential area of Alhambra, Calif. (Dec. 23, 1946)

S-39 revokes student certificate of Freddie Dorman York for carrying a passenger in violation of CAR 43.50. Both York and his passenger were injured when the plane crashed from about 200 feet after take-off from the Corsicana Municipal Airport, Tex. (Dec. 23, 1946)

S-43 revokes student certificate of Lonnie Joe Edwards. Following take-off at Weaver Field, Eastland, Tex., he made an 180° turn at about 100 feet and dived at the hangar (which he barely missed), gas pit and office, and also executed several dives over the field. He flew dangerously low over two homes and over and under telephone lines near a U. S. highway. And he took off from the Abilene, Texas, airport without obtaining clearance from the control tower contrary to CAR 60.107 (operating aircraft within an airport traffic zone contrary to instructions received from the control tower). (Jan. 10)

S-44 revokes airman certificate of Richard Samuel Erdahl. While holding a student certificate he executed several sharp turns immediately followed by two dives from extremely low altitudes to within 10 to 15 feet above the heads of persons on the ground, and crashed as a result of a stall during a steep climbing turn following the second dive. (Jan. 14)

SD-97 revokes student certificate of William Joseph Seibert for carrying a passenger on a flight from Hershey Air Park, Penn. (Dec. 17, 1946)

SD-98 revoked student certificate of Forrest George for carrying a passenger, low flying, and careless, reckless operation. While on a cross-country flight he attempted to drop a note to friends at Slocum, Ohio. Flying at low altitude his plane struck an electric wire, crashed into an apple tree and fell to the ground. (Dec. 17, 1946)

SD-99 revokes commercial certificate of Julian C. Tilton. In addition to breaking the altitude rules over Columbia, S. C., Tilton piloted aircraft while under the influence of intoxicating liquor (43.406); and performed aerobatics while carrying a passenger without proper parachute equipment. (Nov. 26, 1946)

SD-100 revokes flight instructor rating of Edgar Crawford Engler and suspends commercial certificate for 30 days. On one flight from the El Paso Municipal airport, Texas, Engler flew plane which had not been issued a CAA airworthiness certificate or special authorization (43.10 and 43.101) and did not carry

registration certificate (43.10 and 43.100). He flew four aircraft which did not have the appropriate CAA operation records attached to airworthiness certificates (43.10, 43.101 and 43.1010) and on various occasions operated aircraft for hire which had not been inspected by rated mechanics within the preceding 100 hours of flight time (43.23). (Dec. 10, 1946)

SD-104 revokes private pilot certificate of Alfonso Antonio Portage for flying at less than 500 feet over persons on the beach near Palm Beach, Fla., and for flying at tree-top level over two homes. (Dec. 7, 1946)

SD-105 revokes pilot certificate of Ray R. Copeland for piloting plane at an altitude of from 25 to 30 feet over Elk Grove Union Grammar school during school hours at Elk Grove, Calif. (Dec. 26, 1946)

SD-106 revokes commercial certificate of J. Doliver Kent, Jr. While under influence of intoxicating liquor, Kent made a flight with a passenger near Des Moines, Ia., (43.406) flew in careless, reckless manner and crashed. Also he did not have in his possession a medical certificate in violation of 43.402(b). (Dec. 21, 1946)

SD-108 revokes pilot certificate of John Paul Holt. While a student pilot with 10 hours and 35 minutes of solo flight time, he carried a passenger (43.50) and shortly after take-off was involved in an accident. (Nov. 5, 1946)

SD-109 revokes student certificate of Arthur Bailey Duncan and states that no pilot certificate of any type shall be issued Duncan before Jan. 6, 1950. Witnesses stated that he made a number of dives at a truck carrying a group of Amarillo, Texas, high school students to Palo Duro Canyon, coming so close that the landing gear missed them by only some three to ten feet. (Dec. 27, 1946)

SD-110 revokes student certificate of Charles Henry Mayenschein. He carried a passenger while piloting plane near Dayton, Osborn and Indian Lake, Ohio, and crashed during the flight. (Dec. 27, 1946)

Miscellaneous

S-35 denies petition of Terry P. Edmisten, 14, to waive provisions of 20.01(a) requiring applicant for a student certificate to be 16 years old. (Dec. 20, 1946)

S-36 grants Roy James Carver rehearing on certain issues in his case and sets aside Board order 4818 revoking his commercial certificate. (Dec. 27, 1946)

S-40 terminates proceedings against Ernest Ward Condit now holder of private pilot certificate. (Jan. 2)

S-41 dismisses complaint against Howard Hale, student pilot. (Jan. 10)

S-42 grants Administrator leave to withdraw complaint against John V. Mahalchik. (Jan. 10)

Regulations

Amdt. 20-4 Effective December 24, 1946

Sec. 20.55 of CAR Part 20 is amended as follows: **20.55 Exchange of certificates.** A private or commercial pilot certificate which was effective on or after January 1, 1942, and which was issued prior to July 1, 1945, will expire on July 1, 1947. Such certificate may be exchanged at any time prior to July 1, 1947, for a pilot certificate and the appropriate ratings provided for in this part.

Amdt. 42-3 Effective Jan. 15, 1947

The following revisions have been made in Part 42 of the Civil Air Regulations, Nonscheduled Air Carrier Certification and Operations Rules.

1. Amend 42.15 to read as follows:

42.15 Maintenance. The operator of the aircraft shall be responsible for maintaining the aircraft in airworthy condition and for performing all repairs, alterations, and overhauls in accordance with Part 18.

No engine shall be operated longer than 1,000 hours between major overhauls, except where otherwise specifically authorized by the Administrator. This will not authorize use of an engine for such full period of 1,000 hours when inspection or operation indicates that a major overhaul should be accomplished prior to that time or where specifically limited by the Administrator in the air carrier operating certificate.

2. Amend 42.21 to read as follows:

42.21 Flight time limitations for pilots on aircraft of 10,000 lbs. or more maximum take-off weight.

42.210 General.

(a) A pilot may be scheduled to fly 8 hours or less during any 24 consecutive hours without a rest period during such 8 hours.

(b) A pilot shall not receive 24 hours of rest before being assigned further duty when he has flown in excess of 8 hours during any 24 consecutive hours. Time spent in dead-head transportation to or from duty assignment shall not be considered part of such rest period.

(c) A pilot shall be relieved from all duty for not less than 24 consecutive hours at least once during any 7 consecutive days.

(d) A pilot shall not fly as a crew member in air carrier service more than 100 hours during any 30 consecutive days.

(e) A pilot shall not fly as a crew member in air carrier service more than 1,000 hours in any one calendar year.

(f) A pilot shall not do other commercial flying if his total flying time for any specified period will exceed the limits of that period.

42.211 For aircraft having a crew of two pilots.

(a) A pilot shall not be scheduled to fly in excess of 8 hours during any 24-hour period unless he is given an intervening rest period at or before the termination of 8 scheduled hours of flight duty. Such rest period shall equal at least twice the number of hours flown since the last preceding rest period and in no case shall such rest period be less than 8 hours. During such rest period the pilot shall be relieved of all duty with the air carrier.

(b) A pilot shall not be on duty for more than 16 hours during any 24 consecutive hours.

42.212 For aircraft having a crew of three pilots.

(a) A pilot shall not be scheduled for duty on the flight deck in excess of 8 hours in any 24-hour period.

(b) A pilot shall not be scheduled to be aloft for more than 12 hours in any 24-hour period.

(c) A pilot shall not be on duty for more than 18 hours in any 24-hour period.

42.213 For aircraft having a crew of four pilots.

(a) A pilot shall not be scheduled for duty on the flight deck in excess of 8 hours during any 24-hour period.

(b) A pilot shall not be scheduled to be aloft for more than 16 hours in any 24-hour period.

(c) A pilot shall not be on duty for more than 20 hours during any 24-hour period.

3. Amend 42.22 to read as follows:

42.22 Certification and experience.

42.220 Aircraft of less than 10,000 lbs. maximum take-off weight.

(a) **First pilot.** Any pilot serving as first pilot must hold a valid commercial pilot rating with an aircraft type and class rating for the aircraft in which he is to serve, and for:

(1) Day flight CFR-VFR he must have had at least 50 hours of cross-country flight time as pilot or copilot;

(2) Day flight IFR he must possess a currently effective instrument rating and have had a total of at least 500 hours of flight time as pilot or copilot including 100 hours of cross-country flight;

(3) Night flight CFR-VFR or IFR he must possess a currently effective instrument rating and have had a total of at least 500 hours of flight time as pilot or copilot, including 100 hours of cross-country flight of which 25 hours shall have been during the hours of darkness.

(b) **Second pilot.** Any pilot serving as second pilot in an aircraft requiring more than one pilot must hold for:

(1) CFR-VFR flights a valid commercial pilot rating with the appropriate type and class ratings;

(2) IFR flights, in addition to (1), a currently effective instrument rating.

42.221 Aircraft of 10,000 lbs. or more maximum take-off weight.

(a) **First pilot.** Any pilot serving as first pilot must:

(1) possess a valid commercial pilot rating with an aircraft type and class rating for the aircraft in which he is to serve,

(2) possess a currently effective instrument rating,

(3) have logged at least 1,200 hours of flight time of which 500 hours shall have been cross-country,

(4) have logged at least 100 hours of night flying of which 50 hours shall have been cross-country.

(b) **Second pilot.** Any pilot serving as second pilot must:

(1) possess a valid commercial pilot rating with an aircraft type and class rating for the aircraft in which he is to serve.

4. Amend 42.32 to read as follows:

42.32 Serviceability of equipment.

Prior to starting any flight, the aircraft, aircraft engine(s), propeller(s), and appliances, including all instruments, must be in proper operating condition. If during the flight any of the above equipment malfunctions or becomes inoperative, it shall be the pilot's responsibility to determine whether the flight can be continued with safety. The pilot shall be responsible for holding or cancelling a flight until satisfactory repairs or replacements can be made.

5. Amend 42.33(a), to read as follows:

(a) Flight under contact (visual) flight rules (CFR-VFR).

(1) Aircraft of less than 10,000 lbs. maximum take-off weight. A flight shall not be started unless the aircraft carries sufficient fuel and oil, considering the wind and other weather conditions forecast, to fly to the point of intended landing and thereafter for a period of at least 30 minutes at normal cruising consumption.

(2) Aircraft of 10,000 lbs. or more maximum take-off weight.

A flight shall not be started unless the aircraft carries sufficient fuel and oil, considering the wind and other weather conditions forecast, to fly to the point of intended landing and thereafter for a period of at least 45 minutes at normal cruising consumption.

6. Amend 42.34 to read as follows:

42.34 Weather minimums.

42.340 Dispatch. No flight shall be dispatched unless the current weather reports and forecasts show a trend indicating that the ceiling and visibility at the place of intended landing will be at or above the following minimums at the time of arrival.

(a) **Contact (visual) flight operations (CFR-VFR).**

(1) Day. Ceiling 1,000 feet, visibility 1 mile.

(2) Night. Ceiling 1,000 feet, visibility 2 miles.

(b) **Instrument flight operations (IFR).**

(1) Destination. The minimums specified in the CAA Flight Information Manual, or as otherwise specified or authorized by the Administrator.

(2) Alternate. If the airport is served by a radio directional facility, ceiling 1,000 feet, visibility 3 miles; otherwise a ceiling of 1,500 feet with broken clouds or better, visibility 3 miles.

42.341 Take-off. No flight shall be started when the ceiling or visibility at the point of departure is less than:

(a) **Contact (visual) flight operations (CFR-VFR).**

(1) Day. Ceiling 1,000 feet, visibility 1 mile.

(2) Night. Ceiling 1,000 feet, visibility 2 miles.

(b) **Instrument flight operations (IFR).** The minimums specified in the CAA Flight Information Manual, or as otherwise specified or authorized by the Administrator. In no case shall the ceiling be less than 300 feet or the visibility less than one mile.

42.342 Landing. No landing shall be made when the ceiling or visibility is less than:

(a) **Contact (visual) flight operations (CFR-VFR).**

(1) Day. Ceiling 1,000 feet, visibility 1 mile.

(2) Night. Ceiling 1,000 feet, visibility 2 miles.

(b) **Instrument flight operations (IFR).** The minimums as specified in the CAA Flight Information Manual, or as otherwise specified or authorized by the Administrator.

7. Amend 42.37 to read as follows:

42.37 Instrument approach and landing rules.

(a) **Letting-down-through procedure.** The pilot shall use a standard instrument approach procedure for the airport as prescribed in the CAA Flight Information Manual, or as otherwise authorized by the Administrator.

(b) **Limitations.** No instrument approach procedure shall be executed or landing made when the latest United States Weather Bureau weather report for that airport indicates the ceiling or visibility to be less than that prescribed by the Administrator for landing at such airport.

Amdt. 42-4 Effective Feb. 15, 1947

1. Amend 42.13(b) (14) to read as follows:

42.13 Required instruments and equipment.

(b) **CFR-VFR (night) and IFR.**

(14) power failure warning light or vacuum gauge on instrument panel connecting to lines leading to gyroscopic instruments.

2. Add a new section 42.130 to read as follows:

42.130 Required instruments and equipment for aircraft of 10,000 lbs. or more maximum take-off weight.

(a) **CFR-VFR (night) and IFR.**

(1) Instruments and equipment specified in § 42.13(a) and (b).

(2) Additional air-speed indicator.

(3) Electrically heated pitot tube for each air-speed indicator.

(4) Rate-of-climb indicator.

(5) Artificial horizon indicator.

(6) Additional sensitive altimeter.

(7) Approved carburetor de-icing equipment for each engine.

(8) Additional source of energy to supply gyroscopic instruments which shall be capable of carrying the required load. Engine-driven pumps, when used, shall be on separate engines and, in lieu of one such pump, an auxiliary power unit may be used. The installation shall be such that the failure of one source of energy will not interfere with the proper functioning of the instrument by means of the other source.

Amdt. 42-5 Effective July 15, 1947

1. Add to sec. 42.221(b) a subparagraph (2) to read as follows:

42.221 Aircraft of 10,000 lbs. or more maximum take-off weight.

(b) **Second pilot.**

(2) possess a currently effective instrument rating.

2. Amend 42.23(b) to read as follows:

(b) **Instrument competency.** A pilot shall not pilot an aircraft under instrument flight rules unless within the preceding 6 calendar months he has demonstrated to the Administrator, or his representative, his ability to competently pilot an aircraft in instrument flight under actual or simulated conditions.

Amdt. 43-7 Effective Feb. 15, 1947

Sec. 43.400 of CAR Part 43 is amended to read as follows:

43.400 Pilot certificates. No person shall pilot a civil aircraft within the United States unless he holds a valid pilot certificate with appropriate ratings issued by the Administrator or an appropriate and valid foreign certificate. Such certificate shall be in the personal possession of the pilot at all times while piloting aircraft and shall be presented for examination to any inspector of the Administration or State or local law enforcement officer upon the request of such inspector or enforcement officer.

Amdt. 61-3 Effective Jan. 8, 1947

Sec. 61.752 of CAR Part 61 is amended to read as follows:

61.752 Approach and landing limitations. No instrument approach procedure shall be executed or landing made at an airport when the latest U. S. Weather Bureau weather report for that airport indicates the ceiling or visibility to be less than that prescribed by the Administrator for landing at such airport.

Reg. 340-B Effective Dec. 31, 1946

Extends expiration date of Special Civil Air Regulation 340 for six months—from December 31, 1946 to June 30, 1947. Within this time the Board expects to include the provisions of this regulation providing for limited mechanic certificates with propeller or aircraft appliance rating in a revised edition of Part 24, Mechanics Certificates.

Reg. 353-C Effective Jan. 1, 1947

Extends expiration date of Special Civil Air Regulation 353 from Jan. 1, 1947, to April 1, 1947, to continue waiver of certification requirements of CAR 40.253 with respect to certain aircraft radio equipment.

Amendment reads: Special Civil Air Regulation 353, limited to the following items: SCR-522 VHF-transceiver; F-21/ARA-9 and FL-8B range finder; HS-33 headpiece; T-17 microphone; LP-31A and LP-31AM loops; and C-166/AIC-3 switch box, is amended by striking the words "January 1, 1947," and inserting in lieu thereof "April 1, 1947."

Reg. 361-B Effective Dec. 15, 1946

Continues Special Regulation 361-A, due to expire Dec. 15, 1946, until June 15, 1947. This regulation provides special operating rules for long-range flights of scheduled air carriers cruising at specified altitudes. It provides different procedures for traffic clearance, right-of-way, and dispatcher and pilot route qualifications for long distance operations than those presently contained in Parts 40, 60 and 61.

Reg. 385 Effective Jan. 10, 1947

Grants additional time for making aircraft modifications required by fire prevention amendments to CAR Parts 41, 42 and 61. Sections 41.20(f) (2), 42.10(b) and 61.30(b) are amended by substituting "May 1, 1947," for "January 1, 1947," and substituting "May 1, 1948," for "January 1, 1948," sections 41.20(f) (3), 42.10(c) and 61.30(c) are amended by substituting the date "May 1, 1947," for "January 1, 1947," and by substituting the date "May 1, 1948," for the date "September 1, 1947."

Board Provides Special Class For Military Surplus Planes

A special method for accrediting certain military surplus planes for civilian use is provided in the new CAR Part 09, "Aircraft Airworthiness, Limited Category," recently adopted by the Board.

The special registration letters, "NL," are to be used to identify the aircraft.

Safety of this type of aircraft will be gauged by its compliance with military requirements and operation record in the military services rather than by its compliance with the Part 03 and 04 regulations.

To be eligible for the limited airworthiness certificate, a plane, designed for military use, must be basically different from any approved civilian model, and have no civilian counterpart bearing the standard "NC" registration symbol.

Planes certificated in the "NL" category cannot be used to carry passengers or cargo for hire.

DOMESTIC AND TERRITORIAL AIR CARRIER STATISTICS

Operations for December 1946

Source: CAB Form 2780

Operator and routes	Revenue miles flown	Revenue passengers carried *	Revenue passenger-miles flown	Express and freight carried (tons)	Ton-miles flown		Passenger seat-miles flown	Revenue passenger load factor (percent)
					Express	Freight		
All American Aviation, Inc., Pittsburgh-Huntington, Cincinnati, Jamestown, Williamsport, Philadelphia, Total	141,124	0	0	22.0	3,187	0	0	-
American Airlines, Inc., Total	5,779,249	227,683	121,089,955	3,680.0	755,824	1,115,888	168,925,779	71.68
Los Angeles-Boston	3,490,800	134,723	75,651,689	1,559.0	382,746	576,415	102,619,821	73.72
Boston-Cleveland; New York/Newark-Chicago	1,201,999	58,456	23,138,670	1,150.0	245,880	263,348	32,072,713	72.14
Cleveland-Nashville	139,760	10,326	2,129,271	140.0	14,882	12,464	2,786,271	76.42
Washington-Chicago	256,014	11,109	4,809,153	259.0	44,643	70,054	7,659,398	62.79
Chicago-Fort Worth	458,874	23,033	10,739,399	335.0	67,089	93,367	17,022,100	63.09
Buffalo-Toronto	10,143	1,751	120,819	21.0	584	992	208,173	58.04
El Paso, Fort Worth or Dallas-Mexico City	221,639	5,854	4,500,754	216.0	0	99,248	6,537,303	68.64
Braniff Airways, Inc., Total	1,073,481	50,269	10,542,043	357.4	107,681	38,900	29,798,466	62.22
Chicago-Dallas	452,941	19,136	8,806,003	197.6	80,235	28,342	15,703,601	56.46
Denver-Memphis; Dallas-Brownsville or Galveston	545,027	32,095	8,835,667	144.7	25,227	9,661	12,586,820	69.20
Houston-New Laredo or Corpus Christi	75,513	4,037	8,410,373	15.1	2,219	897	1,508,045	55.73
Caribbean-Atlantic Airlines, Inc., San Juan-Mayaguez or Christiansted, Total	30,521	4,862	301,437	8.1	0	560	788,464	38.23
Chicago & Southern Air Lines, Inc., Total	673,877	26,132	10,159,312	310.0	77,583	31,196	17,416,308	58.33
Chicago-New Orleans	350,074	15,838	5,726,387	213.0	56,072	18,048	10,826,508	52.89
Houston-Detroit	323,803	12,860	4,432,925	97.0	21,511	13,148	6,589,800	67.27
Colonial Airlines, Inc., Total	248,359	11,126	3,221,652	30.2	6,551	0	4,871,588	66.13
Washington-Montreal or Ottawa	59,232	2,053	586,745	8.7	859	0	1,183,601	49.57
New York-Burlington-Montreal or Ottawa	189,127	9,073	2,634,907	21.5	5,692	0	3,687,987	71.45
Continental Air Lines, Inc., Total	412,989	15,092	5,359,170	56.3	11,512	14,568	8,522,827	62.88
El Paso-Denver, San Antonio and Tulsa	219,704	8,871	2,832,144	20.0	5,119	2,486	4,541,009	62.37
Pueblo-Tulsa	43,612	2,607	517,739	3.9	503	703	901,293	57.44
Denver-Kansas City	149,673	4,645	2,009,287	32.4	5,890	11,379	3,080,525	65.23
Delta Air Lines, Inc., Total	1,050,482	46,601	20,138,577	316.0	86,580	41,762	29,764,403	67.66
Port Worth-New Orleans, Charleston or Savannah	532,725	30,179	9,993,370	133.0	33,441	15,013	14,548,392	68.69
Chicago-Miami	517,757	22,555	10,145,207	183.0	53,139	26,749	15,215,811	66.68
Eastern Air Lines, Inc., Total	4,072,472	152,360	84,942,796	1,193.6	540,261	99,700	124,157,295	68.42
Boston-Brownsville or San Antonio	1,292,482	55,029	27,025,787	378.7	171,425	31,635	39,395,110	68.60
Miami-Boston or Detroit	1,658,163	62,380	34,526,020	486.1	219,994	40,598	50,556,851	68.29
Chicago-Jacksonville	551,619	25,130	11,572,125	161.7	73,205	13,509	16,823,313	68.79
Miami-Tallahassee; Tallahassee-Atlanta or Nashville	338,026	18,725	7,132,266	99.1	44,842	8,275	10,305,055	69.41
St. Louis-Washington or Nashville	232,182	11,611	4,666,598	68.0	30,795	5,685	7,076,966	65.94
Hawaiian Airlines, Ltd., Honolulu-Hilo or Port Allen, Total	202,665	23,705	3,197,281	386.0	10,881	47,059	4,098,600	78.01
Inland Air Lines, Inc., Total	154,824	6,514	1,714,647	14.7	2,726	815	3,050,760	56.20
Denver-Great Falls	92,862	4,718	1,129,243	10.4	1,894	403	1,876,461	60.18
Huron-Cheyenne	61,962	2,199	585,404	4.3	832	322	1,174,299	49.85
Mid-Continent Airlines, Inc., Total	492,237	21,354	6,472,653	53.4	16,589	0	9,935,436	65.15
New Orleans-Minneapolis-Minot	372,825	16,169	4,913,192	42.7	13,113	0	7,532,737	65.22
Minneapolis-Kansas City and St. Louis	119,412	5,786	1,559,461	10.7	3,476	0	2,402,699	64.90
National Airlines, Inc., Total	869,968	28,567	17,017,068	92.4	33,417	31,454	23,403,551	72.71
New York/Newark-Miami and Key West	604,510	19,912	12,859,211	67.3	22,933	30,115	17,423,567	73.80
New Orleans-Jacksonville and Miami	265,458	10,034	4,157,857	25.1	10,484	1,339	5,979,984	69.53
Northeast Airlines, Inc., New York/Newark-Caribou or Boston; Boston or Burlington-Montreal; Bangor-Montreal, Total	390,542	32,545	6,301,896	93.4	13,681	0	12,625,140	49.92
Northwest Airlines, Inc., New York and Chicago-Seattle and Portland; Grand Forks-Winnipeg, Total	1,616,480	49,575	28,264,349	422.3	234,604	21,450	44,112,535	64.07
Pennsylvania-Central Airlines Corp., Total	1,463,837	96,476	26,445,475	1,570.0	298,550	169,318	46,542,311	56.82
Norfolk-Chicago-Milwaukee	954,287	81,759	18,167,337	988.0	197,606	87,093	32,250,545	56.33
Washington-Buffalo	89,429	4,879	1,088,672	69.0	7,286	1,694	1,845,661	58.99
Detroit-Sault Ste. Marie	20,802	1,394	221,793	21.0	1,506	924	434,682	51.02
Pittsburgh-Buffalo	33,679	2,322	422,670	61.0	6,670	4,729	658,968	64.14
Norfolk-Knoxville	55,954	3,053	741,512	17.0	2,809	889	1,165,022	63.65
New York/Newark-Birmingham	309,596	16,743	5,803,491	414.0	82,583	73,389	10,187,433	56.97
Pioneer Air Lines, Inc., Houston-Amarillo, Total	75,682	2,227	665,688	3.1	967	0	1,819,992	36.58
Transcontinental & Western Air, Inc., Total	3,409,784	69,799	55,517,958	1,486.0	550,466	372,169	78,448,419	70.77
San Francisco-Washington-New York/Newark-Boston	2,663,036	63,981	43,670,916	983.0	397,848	268,351	60,015,404	72.77
Kansas City-New York/Newark or Pittsburgh	564,510	16,011	9,432,281	358.0	127,706	87,309	14,966,125	63.02
St. Louis-Detroit	182,238	8,571	2,414,761	145.0	24,912	16,509	3,466,890	69.65
United Air Lines, Inc., Total	4,521,893	128,626	83,392,754	2,140.0	734,284	829,998	110,351,359	75.57
Oakland-New York/Newark-Boston-Washington	3,135,063	72,625	57,870,637	1,741.0	657,965	732,346	76,811,839	75.34
Salt Lake City-Seattle-Spokane	274,434	11,616	5,481,177	45.0	16,006	19,894	7,570,729	71.46
Seattle-San Diego	1,079,456	47,077	19,653,342	338.0	59,298	76,964	25,198,390	77.99
Denver-Cheyenne	10,732	654	63,744	6.0	206	407	217,440	29.32
Seattle-Vancouver	17,750	2,530	303,876	9.0	808	378	457,118	60.48
Los Angeles-Catalina	4,338	388	19,978	1.0	1	9	95,843	20.84
Western Air Lines, Inc., Total	710,246	36,292	14,897,771	191.6	51,963	31,180	25,507,810	58.40
San Diego-Salt Lake City	240,714	10,973	3,054,097	37.2	8,966	2,494	5,350,337	57.08
Salt Lake City-Great Falls	57,721	2,474	693,561	17.3	2,999	1,239	1,128,872	61.44
Great Falls-Lethbridge	9,442	599	87,798	7.7	82	6	178,947	49.06
Los Angeles-San Francisco or Oakland	159,083	15,750	5,129,519	91.1	12,627	16,503	7,932,498	64.66
Los Angeles-Denver	242,686	8,620	5,932,796	48.3	27,289	10,938	10,917,186	54.34
Grand Totals	27,390,712	1,029,805	507,642,482	12,429.5	3,537,307	2,846,017	744,141,073	68.22
Eastern Air Lines, Inc., operations for November, Total	3,868,290	150,454	77,576,241	816.8	376,920	48,205	113,311,975	68.46
November Grand Total, revised	25,172,010	1,007,532	468,734,095	8,616.6	2,500,212	1,949,770	694,638,128	67.48

* The total passengers carried for each airline is an unduplicated figure.

DOMESTIC AND TERRITORIAL AIR CARRIER STATISTICS—Concluded

Operations for the Year 1946 as Compared with 1945

Operator	Revenue miles flown January–December		Revenue passengers carried (unduplicated) January–December		Revenue passenger miles flown January–December		Express and freight carried (tons) January–December	
	1946	1945	1946	1945	1946	1945	1946	1945
All American Aviation, Inc.	1,752,125	1,460,205	0	0	0	0	117.8	68.8
American Airlines, Inc.	63,266,461	45,445,921	2,485,589	1,299,287	1,307,908,611	762,095,760	21,871.0	13,357.5
Branch Airways, Inc.	11,573,706	8,247,545	335,807	340,954	212,921,564	147,098,680	2,043.4	1,115.1
Caribbean-Atlantic Airlines, Inc.	330,194	297,279	49,733	35,154	3,028,979	2,109,258	86.0	130.0
Chicago & Southern Air Lines, Inc.	8,094,661	5,081,008	350,296	197,541	137,843,727	83,667,880	1,579.7	884.7
Colonial Airlines, Inc.	3,175,637	1,655,197	154,398	93,252	45,592,520	28,224,439	239.1	111.7
Continental Air Lines, Inc.	5,406,360	3,609,112	204,602	124,055	75,622,816	48,113,497	351.2	202.0
Delta Air Lines, Inc.	11,076,804	5,900,750	509,219	274,823	209,582,733	103,245,980	1,522.0	663.2
Eastern Air Lines, Inc.	41,295,630	26,127,605	1,549,965	896,545	803,026,289	446,289,201	6,615.4	4,067.9
Hawaiian Airlines, Ltd.	1,985,197	1,207,098	248,977	139,803	35,001,337	22,755,889	3,306.7	3,254.6
Inland Air Lines, Inc.	1,980,597	1,024,436	81,307	58,996	22,362,413	17,005,570	105.3	62.4
Mid-Continent Airlines, Inc.	5,272,030	3,274,738	249,672	132,784	75,570,341	43,128,346	400.9	214.8
National Airlines, Inc.	9,133,278	5,495,121	292,943	140,739	173,174,678	66,135,148	480.1	250.0
Northeast Airlines, Inc.	4,175,029	2,182,986	417,095	175,608	83,848,737	37,163,177	682.9	202.7
Northwest Airlines, Inc.	18,631,146	11,902,080	626,340	330,489	378,440,103	208,182,389	2,291.1	1,476.5
Pennsylvania-Central Airlines Corporation	17,541,084	10,840,835	1,342,890	730,984	373,331,446	183,792,992	7,539.0	3,865.6
Pioneer Air Lines, Inc.	968,911	310,783	20,677	4,452	5,901,887	1,311,786	20.6	3.1
Transcontinental & Western Air, Inc.	40,928,715	30,612,693	885,309	555,966	744,290,703	492,761,145	10,605.0	8,417.6
United Air Lines, Inc.	54,479,796	38,421,150	1,754,168	772,013	1,067,937,742	575,017,597	13,167.4	5,967.9
Western Air Lines, Inc.	8,585,286	5,286,432	479,642	232,807	191,660,098	94,356,803	1,534.5	702.5
Total	309,592,647	208,982,974	12,238,629	6,572,252	5,947,046,724	3,362,455,537	74,559.1	45,008.6
Index (1945 = 100)	148.14	100.00	186.22	100.00	176.87	100.00	165.66	100.00
Revised January–November total	282,201,935		11,208,824		5,439,404,242		62,129.6	

Operator	Ton miles flown				Passenger seat-miles flown January–December		Revenue passenger load factor (percent) January–December	
	Express January–December		Freight * January–December		1946	1945	1946	1945
	1946	1945	1946	1945				
All American Aviation, Inc.	15,860	10,672	0	0	0	0	—	—
American Airlines, Inc.	5,176,048	5,561,618	6,238,966	985,806	1,603,159,044	847,431,185	81.58	89.93
Branch Airways, Inc.	614,060	497,671	237,743	4,857	275,968,403	165,036,881	77.15	89.13
Caribbean-Atlantic Airlines, Inc.	1,796	8,087	4,569	2,628	6,826,484	4,266,265	44.37	49.44
Chicago & Southern Air Lines, Inc.	509,028	359,238	71,952	0	196,289,556	105,506,925	70.22	79.30
Colonial Airlines, Inc.	55,604	31,827	0	0	63,239,621	34,708,081	72.09	81.32
Continental Air Lines, Inc.	73,263	85,516	71,684	0	112,306,913	62,312,081	67.34	77.21
Delta Air Lines, Inc.	532,058	245,719	136,690	0	292,801,826	122,889,538	71.58	84.02
Eastern Air Lines, Inc.	3,450,701	2,442,906	320,450	75,067	1,037,209,828	513,067,706	77.42	86.95
Hawaiian Airlines, Ltd.	110,576	317,482	384,630	178,885	41,291,484	24,288,624	84.77	93.69
Inland Air Lines, Inc.	20,289	11,417	4,673	0	36,184,713	23,592,732	61.80	72.08
Mid-Continent Airlines, Inc.	135,519	63,888	0	0	104,242,610	56,918,356	71.49	75.77
National Airlines, Inc.	239,392	119,779	56,792	0	221,025,465	73,976,371	78.35	89.40
Northeast Airlines, Inc.	114,258	36,603	0	0	127,502,161	49,905,508	65.76	74.47
Northwest Airlines, Inc.	1,299,592	826,775	33,496	0	467,054,065	235,538,476	81.03	88.39
Pennsylvania-Central Airlines Corporation	1,444,721	860,205	418,991	0	532,995,340	224,144,672	70.04	82.00
Pioneer Air Lines, Inc.	6,539	810	0	0	14,201,868	2,486,459	41.56	52.76
Transcontinental & Western Air, Inc.	3,940,438	4,258,264	2,216,688	97,652	888,056,414	545,491,488	83.81	90.33
United Air Lines, Inc.	5,624,720	4,826,948	4,445,081	0	1,266,675,853	615,591,601	84.31	93.41
Western Air Lines, Inc.	422,117	279,867	187,983	5,152	265,676,981	108,390,176	72.14	87.05
Total	23,786,579	20,845,292	14,830,388	1,350,047	7,552,708,629	3,815,573,125	78.74	88.12
Index (1945 = 100)	114.11	100.00	—	—	197.94	100.00	89.36	100.00
Revised January–November total	20,249,272		11,984,371		6,808,567,556		79.89	

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Passengers carried (undup.) total revenue and non-revenue	661,480	667,376	828,276	953,000	1,032,212	1,173,099	1,218,458	1,367,345	1,296,567	1,205,494	1,118,643	1,054,709	12,577,259
Passenger-miles flown (total revenue and non-revenue)	336,897,337	337,356,042	413,367,422	469,093,606	521,643,616	573,185,511	582,226,933	638,310,579	625,367,788	570,223,624	479,903,109	519,533,006	6,067,108,573

* Express and freight ton-miles combined under express prior to July 1945.

NOTE.—Effective January 1, 1946 all revenue traffic statistics are reported to the CAB on the basis of direct airport-to-airport distances. For purposes of comparability, those statistics reported prior to that date on the basis of course-flown distances have been converted to reflect direct airport-to-airport distances.

CAA and CAB Releases

Copies of CAA releases may be obtained from the CAA Office of Aviation Information. CAB releases are obtainable from the Public Information Section of the Board. Both offices are located in the Department of Commerce Building, Washington 25, D. C.

Administration

Airport Control Towers to Use New Very High Frequency. (Dec. 31)

CAA Announces Regulations for Federal Airport Aid. (Jan. 9)

CAA and State Commissioners Sponsor Two-Day Aviation Clinic in Chicago. (Jan. 14)

Wright Announces First Year Airport Construction Program. (Jan. 11)

Industry-Government Survey Planned to Study

Methods of Entry by Air. (Jan. 12)

Hook Named to Succeed Donaldson in Important Airports Position. (Jan. 13)

Old Pilot Certificates Must Be Exchanged. (Jan. 20)

Pilots Must Carry and Show Licenses. (Jan. 27)

Speech by William A. M. Burden, Assistant Secretary of Commerce, entitled, "The Federal Airport Program Becomes a Reality," given at the Annual Conference of U. S. Mayors, Washington, D. C., January 21.

Board

North Central Case (Dec. 31, 1946)

Statistics—Mileage & Traffic for first 9 months of 1946 (Jan. 7)

El Salvador Air Service to United States (Jan. 8)

Amendment to Instrument Approach Procedure (Jan. 10)

Statistics—Financial for first 9 months of 1946 (Jan. 10)

Amended certificates for certain routes of Eastern Air Lines, Inc., and Delta Air Lines, Inc. (Jan. 10)

Statistics—Financial for first 8 months of 1946 (Jan. 10)

Air Safety Regulations Amended (Part 42) (Jan. 21)

Service to Montego Bay (Jan. 23)

Town Hall Meeting on Airports

A "Town Hall Meeting on Airports" is scheduled February 17-20 in Chicago by the Airport Division of the American Road Builders' Association, with special emphasis being given to the coming federal-aid airport program.

... CAA Staff Changes ...

H. A. Hook New Airport Head

New head of the CAA Office of Airports is H. Arthur Hook who has been appointed Assistant Administrator of Airports to succeed Charles B. Donaldson.

Since November 1946, Mr. Hook has been Deputy Administrator for Airports, returning to Washington after five years in the sixth region. His new assignment comes at a time when the CAA is embarking on its \$500,000,000 Federal-aid Airport Program.

Most of Mr. Hook's 20 years of service in the CAA and its predecessor agencies has been in federal airways work. Entering the Aeronautics Branch of the Department of Commerce in 1928, he worked on the construction of federal airways and up through various jobs in that service to the position of Assistant Chief in Washington in 1941.

Mr. Donaldson has transferred at his own request to the sixth region, where he will serve as airport engineer for Nevada. He has served as Assistant Administrator for Airports since 1941.

Sturhahn Succeeds Preil

E. M. Sturhahn, formerly Executive Assistant to the Administrator, has been appointed to succeed Alvin O. Preil as Assistant Administrator for Business Management.

Mr. Preil, a veteran of 20 years' service with the Civil Aeronautics Administration, has resigned to accept a captaincy in the Navy, with which he served during the war. He returned from military service in May of last year, and took over the business management of the CAA at that time. He will be stationed in Washington.

Mr. Sturhahn, who came to the CAA from military service about two years ago, will be succeeded by Frederick Lee who has been in charge of project planning in the Plans and Performance staff. The job vacated by Mr. Lee will be filled by John Marshall, who will add these duties to those he now has executive secretary of the joint CAA-CAB committee.

Named Region 3 Attorney

John A. Cannon, veteran of both World Wars, has been appointed Civil Aeronautics Administration attorney for Region 3, with headquarters in Chicago, Ill.

Before coming to the CAA, Mr. Cannon served as legislative attorney in the Department of Commerce under two secretaries, Jesse H. Jones and Henry A. Wallace. He is a member of the District of Columbia Bar and also that of Idaho, his native state, where he engaged in general practice at Pocatello. Shortly after the Pearl Harbor attack he entered the Army and was commissioned major, serving as intelligence officer in the Air Forces.

At the outbreak of the first World War he enlisted as a private in the Signal Enlisted Reserve Corps and attended the University of California ground school and later the school of aerial observers at Fort Sill, Okla. He was honorably discharged as a sergeant. Between 1924 and 1930 he served as secretary to five members of Congress and during that time studied at the National University, Washington, D. C., from which he was graduated in 1927 with an LL.B. degree.

Heads Personal Flying

H. Lloyd Child, who has been serving as executive secretary of the Administrator's Nonscheduled Flying Advisory Committee, has been appointed Assistant to the Administrator for Personal Flying Development, to succeed John H. Geisse who resigned last year. He will continue to serve as executive secretary of the advisory committee.

CAA Display Shows Realistic Airport Models



Four large-scale detailed models, giving a preview of the types of airports that will be built for the private flyer in the 1947 phase of the Civil Aeronautics Administration's new federal-aid airport program, were on display in the lobby of the Department of Commerce, Washington, D. C., during the past month.

Strikingly realistic reproductions of landing fields and the surrounding terrain, these dioramas depict air-parks in metropolitan, suburban, farming, and resort areas. Originally designed for the Aircraft Industries Association of America, with CAA technical advice, they were lent to CAA as an educational exhibit in connection with the seven-year, half-billion dollar national airport program.

The program this year involves appropriations of \$45,000,000, which will be used to build or improve more than 800 small airports; programs

of succeeding years will include larger airports.

The metropolitan airport, which is shown with alternating day and night lighting effects, is built in the heart of the city, and includes a theater, large restaurant, and an apartment hotel for visiting flyers.

The suburban airport, built next to a shopping center and golf course, features an administration building that also serves as a community center for meetings, dances, and little theater activities.

The resort airport, consisting of an L-shaped runway and individual hangars within easy reach of several hotels, would serve, according to the accompanying recording, to avoid summer travel that amounts to "a slight case of murder."

The diorama of the farming area shows a simple grass landing strip, and along the highway a "sky-tel," a group of cabins with gas pumps and other facilities to serve both flyers and motorists.

Old-type Pilot Certificates Expire July 1, CAA Warns

All private and commercial pilot certificates issued before July 1, 1945, will expire on July 1 of this year, unless they have been exchanged for new-type certificates before that date.

Such certificates may be exchanged at any time before that date. Pilots are being urged to act promptly, however, to avoid a last-minute rush and possible delay.

No red tape or written application is involved in the exchange. The pilot simply presents his old-type certificate to a CAA inspector, who immediately issues a new-type certificate. A pilot can arrange to make the exchange at a CAA regional or district office, or arrange to see an inspector who

may be on an inspection trip at a local airport.

The new-type certificate can be issued by mail, but because of the risk of loss, and lack of any certificate while the exchange is being made, most pilots prefer to handle the transaction in person.

No effort was made to renew private and commercial certificates during the war years, and those issued after January 1, 1942, have been considered valid. These wartime certificates are the ones which must be replaced by July 1 of this year.

The new-type certificates will be valid for at least 24 months from the date of issue, and the Civil Aeronautics Board is considering extending them for an even longer period.

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